ZOONOSES MONITORING

LATVIA

The Report referred to in Article 5 of Directive 92/117/EEC

TRENDS AND SOURCES OF ZOONOSES AND ZOONOTIC AGENTS IN HUMANS, FOODSTUFFS, ANIMALS AND FEEDINGSTUFFS

including information on foodborne outbreaks and antimicrobial resistance in zoonotic agents

IN 2004

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: **Latvia**

Reporting Year: **2004**

Institutions and laboratories involved in monitoring:

Laboratory name	Description	Contribution
Food and Veterinary Service	The Food and Veterinary Service is a state administrative institution subordinated to the Ministry of Agriculture. FVS ensures unified state surveillance and control over the whole food chain including feed, animals and food. The Service hosts the working group that is responsible for the creation of the Latvian report on zoonoses.	- food surveillance data - veterinary surveillance data - feed surveillance data including related text parts
State Veterinary Diagnostic Centre	The Diagnostic Centre is the main laboratory investigating official and private food, feed and animal samples, and it is a structural unit of the Food and Veterinary Service. It also does the testing of foxes on the uptake of vaccine baits after oral vaccination against rabies and the testing of brain material on TSE. Typing of bacteria isolates and determination of antimicrobial susceptibility belong to the tasks of the Diagnostic Centre.	- data on results from self-control programs - data on antimicrobial susceptibility - data on typing of isolates including related text parts

Public Health Agency	The Public Health Agency is a state agency supervised by the Ministry of Health. Main objectives of the Agency are to ensure surveillance, investigation and assessment of the health of the population and health risk factors, prevalence of communicable and other diseases and human health risk factors, epidemiological investigation of communicable diseases. It organises preventive and anti-epidemic measures at infection foci and monitors drinking water quality.	- data on foodborne outbreaks - data on human cases, except human tuberculosis including related text parts
State Centre of Tuberculosis and Lung Diseases	The Centre is a state hospital subordinated to the Ministry of Health. It collects data on human tuberculosis and maintains the tuberculosis register of Latvia according to the WHO guidelines. The institution has also laboratory facilities for microbiological investigations.	- data on tuberculosis in humans

PREFACE

This report is submitted to the European Commission in accordance with Article 5 of Council Directive 92/117/EEC[1]. The information has also been forwarded to the European Food Safety Authority (EFSA).

The report contains information on trends and sources of zoonoses and zoonotic agents in Latvia during the year 2004. The information covers the occurrence of these diseases and agents in humans, animals, foodstuffs and in some cases also in feedingstuffs. In addition the report includes data on antimicrobial resistance in some zoonotic agents and commensal bacteria as well as information on epidemiological investigations of foodborne outbreaks. Complementary data on susceptible animal populations in the country is also given.

The information given covers both zoonoses that are important for the public health in the whole European Community as well as zoonoses, which are relevant on the basis of the national epidemiological situation.

The report describes the monitoring systems in place and the prevention and control strategies applied in the country. For some zoonoses this monitoring is based on legal requirements laid down by the Community Legislation, while for the other zoonoses national approaches are applied.

The report presents the results of the examinations carried out in the reporting year. A national evaluation of the epidemiological situation, with special reference to trends and sources of zoonotic infections, is given. Whenever possible, the relevance of findings in foodstuffs and animals to zoonoses cases in humans is evaluated.

The information covered by this report is used in the annual Community Summary Report on zoonoses that is published each year by EFSA.

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1 Council Directive 92/117/ECC of 17 December 1992 concerning measures for protection against specified zoonoses and specified zoonotic agents in animals and products of animal origin in order to prevent outbreaks of foodborne infections and intoxications, OJ L 62, 15.3.1993, p. 38

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1. ANIMAL POPULATIONS

The relevance of the findings on zoonoses and zoonotic agents has to be related to the size and nature of the animal population in the country.

A. Information on susceptible animal population

Sources of information:

Data on cattle, pigs, horses, goats and sheep: State Agency "Agricultural Data Centre".
Data on poultry: Food and Veterinary Service.

Dates the figures relate to and the content of the figures:

Data on cattle, pigs, horses, goats and sheep: 01.01.2005.
Data on poultry: average population during the year.

Definitions used for different types of animals, herds, flocks and holdings as well as the types covered by the information:

Animals - cattle, pigs, sheep, goats, horses, rabbits, swamp beaver, fur animals, poultry, bee gardens, fishponds, hactheries of aquatic animals, wild animals and birds, which kept in the holding.
Herd - an animal or group of animals, which has a one holder.
Holding - shall mean separate confined area in which animals are kept regulary or temporary.
Poultry - shall mean fowl, turkeys, guinea fowl, ducks, geese, quails, pigeons, pheasants, partridges, ratites and etc. birds reared or kept in captivity for breeding, the production of meat or eggs for consumption, or for re-stocking supplies of game.
Day-old chicks - poultry less than 72 hours old, not yet fed; except, muscovy ducks (Cairina moschata) or their crosses may be fed and ratites (Ratitae), which not yet fed 5 days.
Commercial poultry - poultry 72 hours old or more, reared for the production of meat and/or eggs for marketing or for restocking supplies of game.
Flock (for poultry only)- all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit. In housed poultry this will include all birds sharing the same airspace.

Geographical distribution and size distribution of the herds, flocks and holdings

Animals and herds are distributed almost evenly over the whole territory of Latvia. Concerning poultry population, there are two districts, where the holdings with biggest numbers of birds are located: Riga district and Bauska district, both in the centre/southern centre of Latvia.

Additional information

Control and surveillance of zoonoses are implemented and applied in the whole territory of Latvia. The territory of Latvia is divided in 27 administrative areas - districts. There are Food and Veterinary territorial structural units - regional offices in all administrative areas. The regional offices carry out the official surveillance in accordance with the state surveillance programmes in the administrative area concerned.

Table 14.1 Susceptible animal populations: number of herds and holdings rearing animals

* Only if different than current reporting year

Animal species	Category of animals	Number of herds or flocks	Year*	Number of holdings	Year*
Cattle (bovine animals)	in total	71799		70860	
Ducks	in total (1)	1		1	
Gallus gallus	breeding animals - in total	25		3	
	parent birds - in total	25		3	
	broilers	56		4	
	laying hens	55		26	
	parent birds for meat production line	14		1	
	parent birds for egg production line	11		2	
	breeding animals for egg production line - in total	11		2	
	breeding animals for meat production line - in total	14		1	
	in total (2)	136		28	
Geese	mixed flocks/holdings	2		2	
	in total (3)	2		2	
Goats	in total	1751		1751	
Pigs	in total	2543		2543	
Sheep	in total	3454		3454	
Solipeds	horses - in total	9252		9252	
Turkeys	mixed flocks/holdings	2		2	
	in total (4)	2		2	
Farmed reindeers	in total	0		0	
Farmed deer	in total	28		28	

(1): Commercial ducks population
(2): Commercial Gallus gallus population
(3): Commercial geeses population
(4): Commercial turkeys population

Table 14.2 Susceptible animal populations: number of animals

* Only if different than current reporting year

Animal species	Category of animals	Livestock numbers (live animals)	Year*	Number of slaughtered animals	Year*
Cattle (bovine animals)	in total	376547		117120	
Ducks	in total (1)	117			
Gallus gallus	breeding animals - in total	133742		6500	
	parent birds - in total	133742		6500	
	broilers	1060267			
	laying hens	1584927			
	parent birds for meat production line	83480			
	parent birds for egg production line	50262		6500	
	breeding animals for meat production line - in total	83480			
	in total	2778936			
Geese	in total (2)	795			
Goats	in total	14500			
Pigs	in total	340296		419105	
Sheep	in total	35699		3696	
Solipeds	horses - in total	17700		239	
Turkeys	in total	91			
Poultry	in total (incl. Gallus gallus, ducks, geese, turkeys etc.)	3576000		8224005	
Farmed deer	in total	2191			

(1): Commercial duck population
(2): Commercial geese population

2. INFORMATION ON SPECIFIC ZOONOSES AND ZOONOTIC AGENTS

Zoonoses are diseases or infections, which are naturally transmissible directly or indirectly between animals and humans. Foodstuffs serve often as vehicles of zoonotic infections. Zoonotic agents cover viruses, bacteria, fungi, parasites or other biological entities that are likely to cause zoonoses.

2.1. SALMONELLOSIS

2.1.1. General evaluation of the national situation

A. General evaluation

History of the disease and/or infection in the country

The prevalence of Salmonella in animals and food of animal origin has been monitored over a long period of time. From 1967 until the end of 2002, 51836 times Salmonella could be isolated from animal samples. Most isolates originated from poultry (57,6%) and from pigs (29,0%). In cattle and fur animals, Salmonella was isolated in lower numbers, 8,6% and 2,7%, respectively. Goats (0,05%), horses (0,01%) and others (2,0%)were also investigated.
The main serotypes found in poultry in the same period of time (1967-2003) were S. gallinarum (87,1%), S. enteritidis (9,6% of isolates) and S. typhimurium (2,8%). In pigs, besides S. choleraesuis (94,0%), mainly S. typhimurium was found (0,8%), while in cattle S. enteritidis (57,9%) and S. dublin (35,4%) were the most prominent serotypes. In fur animals, four different serotypes were isolated: S. choleraesuis (29,9%), S. dublin (23,5%), S. enteritidis (22,5%) and S.typhimurium (20,6%).

National evaluation of the recent situation, the trends and sources of infection

From the total number of foodborne outbreaks in 2003, 29% were salmonellosis, in 2002 it was 39%. The Salmonella serotype isolated most often was S. enteritidis.

Additional information

58% of the cases of acute enteritis including salmonellosis are not related to the food product bought, but to the handling of the product at home, like storing, cooking etc.

2.1.2. Salmonellosis in humans

A. Salmonellosis in humans

Reporting system in place for the human cases

Official reports about human cases in the country are provided monthly by all 33 regional PHA offices. The regional epidemiologists report to the regional office, which sends the reports to the central PHA. The official reports contain statistical overviews and additional informations in the context of epidemiological investigations.

Case definition

Possible: N.A.
Probable : A laboratory confirmed isolate without clinical information or, a case with clinical symptoms that has an epidemiological link.
Confirmed : A clinically compatible case that is laboratory confirmed.

Diagnostic/analytical methods used

Clinical Microbiology Procedures Handbook.
"Test methods used in the identification of commonly isolated aerobic gram-negative bacteria."
"Commercial systems for identification kits API 20E, ID 32E".

Notification system in place

In consistence with the Order of Cabinet of Ministers of the Republic of Latvia Nr. 7, 05.01.1999, "About the order of registration of infectious diseases", medical staff notifies human cases of salmonellosis.
Human cases of infectious diseases have to be notified within 12 hours orally or written.

History of the disease and/or infection in the country

In Latvia, salmonellosis has been reported since 1958 and has been included in the mandatory list of reportable diseases since 1960. The epidemiological surveillance data show that within the period of last 20 years a steep rise in salmonellosis incidence was reported in the second half of 1988, with the peak in 1989 - 126 cases per 100 000 population. The lowest level of salmonellosis incidence was reported in 1997 - 27,7 cases per 100 000 population. Since 1998, a small rise in salmonellosis incidence is reported every other year.

Results of the investigation

During the last 5 years
- S.enteritidis-caused illness prevails
- the highest rate of salmonellosis incidence has been reported in age group under 6 years
- the increase in the number of salmonellosis cases is predominantly reported during the summer months

Table 3.4.1.A Salmonellosis in man - species/serotype distribution

Salmonella	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc	unknown status
	503	19	497	19	6	0	0
S. Altona	1	0,04			1	0,04	
S. Brandenburg	2	0,09	2	0,09			
S. Derby	40	1,72	40	1,72			
S. Enteritidis	423	18,24	420	18,11	3	0,13	
S. Infantis	4	0,17	3	0,13	1	0,0	
S. Isangi	1	0,04	1	0,04			
S. Kentucky	1	0,04			1	0,0	
S. London	1	0,04	1	0,04			
S. Typhimurium	23	0,99	23	0,99			
S. Virchow	7	0,3	7	0,3			

Table 3.4.1.B Salmonellosis in man - age distribution

Age Distribution	S. Enteritidis			S. Typhimurium			Salmonella spp.		
	All	M	F	All	M	F	All	M	F
<1 year	19	13	6	0	0	0	22	15	7
1 to 4 years	128	67	61	8	4	4	159	85	74
5 to 14 years	65	21	44	5	4	1	81	30	51
15 to 24 years	49	21	28	1	1	0	65	29	36
25 to 44 years	75	43	32	3	1	2	86	47	39
45 to 64 years	57	26	31	4	3	1	70	33	37
65 years and older	30	11	19	2	0	2	37	12	25
Age unknown									
Total :	423	202	221	23	13	10	520	251	269

Table 3.4.2 Salmonellosis in man - seasonal distribution

Month	S. Enteritidis	S. Typhimurium	Salmonella spp.
	Cases	Cases	Cases
January	20	0	20
February	15	2	17
March	35	1	38
April	34	0	34
May	43	0	46
June	60	2	64
July	65	4	73
August	41	4	48
September	53	5	75
October	23	3	27
November	24	1	33
December	10	1	45
not known			
Total :	423	23	520

2.1.3. Salmonella in foodstuffs

A. Salmonella spp in eggs and egg products

Additional information

The National control program does not include egg and egg products, but there is a laboratory control program in place to control the companies which are part of the food chain. Samples of eggs and egg products were taken in the scope of this program.

B. Salmonella spp. in broiler meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

Inspectors of the Food and Veterinary Service are taking the samples. One sample consists of 5 subsamples or units. Every unit is packed and stored seperatly, and also laboratory testing is performed on each unit. For laboratory testing, 25g of each unit are taken for further investigations.

At meat processing plant

Inspectors of the Food and Veterinary Service are taking the samples. One sample consists of 5 subsamples or units. Every unit is packed and stored seperatly, and also laboratory testing is performed on each unit. For laboratory testing, 25g of each unit are taken for further investigations.

At retail

Inspectors of the Food and Veterinary Service are taking the samples. One sample consists of 5 subsamples or units. Every unit is packed and stored seperatly, and also laboratory testing is performed on each unit. For laboratory testing, 25g of each unit are taken for further investigations.

Frequency of the sampling

At slaughterhouse and cutting plant

Sampling distributed evenly throughout the year

At meat processing plant

Sampling distributed evenly throughout the year

At retail

Sampling distributed evenly throughout the year

Type of specimen taken

At slaughterhouse and cutting plant

Fresh meat

At meat processing plant

Meat products: Fresh meat and meat products

At retail

Meat preparations: meat products,fresh meat

Definition of positive finding

At slaughterhouse and cutting plant

None of the subsamples /units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive (excluding fresh poultry meat - one of the sample units is allowed to be positive).

At meat processing plant

None of the subsamples /units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive(excluding fresh poultry meat - one of the sample units is allowed to be positive).

At retail

None of the subsamples /units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive(excluding fresh poultry meat - one of the sample units is allowed to be positive).

Diagnostic/analytical methods used

At slaughterhouse and cutting plant

Bacteriological method: ISO 6579:2002

At meat processing plant

Bacteriological method: ISO 6579:2002

At retail

Bacteriological method: ISO 6579:2002

Control program/mechanisms

The control program/strategies in place

National control programme on Salmonella, based on the Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified foodborne zoonotic agents.

Measures in case of the positive findings or single cases

The inspector immediatly has to perform an inspection at the slaughterhouse, processing plant or at the store. He decides what to do with the rest of the batch, if there are still products left, and collects all necessary documents to clearify the origin of the product. The inspector also decides on the actions that have to be taken in the company, like asking for HACCP system improvements etc.). Desinfection has to be carried out at all places where the infected product had contact with.

C. Salmonella spp. in turkey meat and products thereof

Additional information

See "Broiler meat and meat products".

D. Salmonella spp. in pig meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

Pig meat and products thereof are not sampled at slaughterhouses and cutting plants.

At meat processing plant

Inspectors of the Food and Veterinary Service are taking the samples. One sample consists of 5 subsamples or units. Every unit is packed and stored seperatly, and also laboratory testing is performed on each unit. For laboratory testing, 25g of each unit are taken for further investigations.

At retail

Inspectors of the Food and Veterinary Service are taking the samples. One sample consists of 5 subsamples or units. Every unit is packed and stored seperatly, and also laboratory testing is performed on each unit. For laboratory testing, 25g of each unit are taken for further investigations.

Frequency of the sampling

At meat processing plant

Sampling distributed evenly throughout the year

At retail

Sampling distributed evenly throughout the year

Type of specimen taken

At retail

Other: Fresh meat, meat products

Definition of positive finding

At meat processing plant

None of the subsamples /units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive.

At retail

None of the subsamples /units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive.

Diagnostic/analytical methods used

At meat processing plant

Bacteriological method: ISO 6579:2002

At retail

Bacteriological method: ISO 6579:2002

Control program/mechanisms

The control program/strategies in place

National control programme on Salmonella, based on the Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified foodborne zoonotic agents.

Measures in case of the positive findings or single cases

The inspector immediatly has to perform an inspection at the processing plant or at the store. He decides what to do with the rest of the batch, if there are still products left, and collects all necessary documents to clearify the origin of the product. The inspector also decides on the actions that have to be taken in the company, like asking for HACCP system improvements etc.). Desinfection has to be carried out at all places where the infected product had contact with.

E. Salmonella spp in bovine meat and products thereof

Additional information

Bovine meat and products thereof are not included in the National control program on Salmonella.

Table 3.3.1 Salmonella sp. in meat and meat products

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. 6,7:-:e,n,z15	Salmonella spp.	S. Derby
Bovine meat											
fresh											
- at slaughter		1 batch was sampled	batch	25g	5	0					
- at processing plant					0						
- at retail					0						
minced meat											
- at processing plant		1 batch was sampled	batch	25g	5	0					
- at retail		2 batches were sampled	batch	25g	2	0					
meat products											
non-ready-to-eat											
- at processing plant		3 batches were sampled	batch	25g	15	0					
- at retail					0						
ready-to-eat											
- at processing plant		3 batches were sampled	batch	25g	15	0					
- at retail		48 batches were sampled	batch	25g	52	0					
- in total - HACPP or own checks by industry			sample	25g	211	0					
Pig meat											
fresh											
- at slaughter		37 batches were sampled	batch	25g	185	2		1			1
- at processing plant		7 batches were sampled	batch	25g	35	0					
- at retail		6 batches were sampled	batch	25g	30	0					
minced meat											

- at processing plant		1 batch was sampled	batch	25g	5	0					
- at retail					0						
meat products											
non-ready-to-eat											
- at processing plant		7 batches were sampled	batch	25g	35	0					
- at retail		14 batches were sampled	batch	25g	14	0					
ready-to-eat											
- at processing plant		6 batches were sampled	batch	25g	30	0					
- at retail		59 batches were sampled	batch	25g	198	0					
- in total - HACPP or own checks by industry			sample	25g	31	1		1			
Broiler meat											
fresh											
- at slaughter		14 batches were sampled	batch	25g	70	5	5				
- at processing plant		2 batches were sampled	batch	25g	10	0					
- at retail		69 batches were sampled	batch	25g	345	25	25				
minced meat											
- at processing plant		1 batch was sampled	batch	25g	5	0					
- at retail		1 batch was sampled	batch	25g	1	0					
meat products											
non-ready-to-eat											
- at processing plant					0						
- at retail		15 batches were sampled	batch	25g	15	0					
ready-to-eat											
- at processing plant		3 batches were sampled	batch	25g	15	0					
- at retail		20 batches were sampled	batch	25g	80	0					
- in total - HACPP or own checks by industry			sample	25	84	2	1		1		

Turkey meat											
fresh											
- at slaughter					0						
- at processing plant					0						
- at retail		1 batch was sampled	batch	25g	1	0					
minced meat											
- at processing plant					0						
- at retail					0						
meat products											
non-ready-to-eat											
- at processing plant					0						
- at retail					0						
ready-to-eat											
- at processing plant					0						
- at retail		2 batches were sampled	batch	25g	2	0					
Other meat											
fresh											
- at slaughter					0						
- at processing plant					0						
- at retail					0						
minced meat											
- at processing plant					0						
- at retail					0						
Mixed meat											
minced meat											
- at processing plant					0						
- at retail		10 batches were sampled	batch	25g	10	0					
- at processing plant - HACPP or own checks by industry			sample	25g	5	0					
Other animals or mixed meat											
meat products											
non-ready-to-eat											
- at processing plant (1)		9 batches were sampled	batch	25g	45	0					
- at retail		33 batches were sampled	batch	25g	33	0					
ready-to-eat											

- at processing plant		27 batches were sampled	batch	25g	135	0					
- at retail		92 batches were sampled	batch	25g	160	0					
- at processing plant - HACPP or own checks by industry			sample	25g	1474	3	2			1	

(1) : HACPP or own checks by industry - 89 samples; controla programme - 9 samples

Footnote

One sample consists of 1-5 units. The number of units tested and results refer to each single unit.
Data shown in this table exclusively refer to products of Latvian origin. Imported products are not included.
Source of information for all data excluding data on HACCP or own checks by industry is the Food and Veterinay Service. Data on HACCP or own checks by industry were submitted by the State Veterinary Diagnostic Centre.

Table 3.3.2 Salmonella sp. in other food

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. Derby	S. Stanley	S. Wagenia	S. Meleagridis	S. Kentucky
cow milk													
raw					0								
- HACPP or own checks by industry			sample	25g	10	0							
Dairy products													
ready-to-eat		118 batches were sampled	batch	25g	590	0							
- HACPP or own checks by industry			sample	25g	1044	0							
Table eggs													
- at packing centre		2 batches were sampled	batch	25g	2	0							
- at retail					0								
- at packing centre - HACPP or own checks by industry			sample	25g	34	0							
Egg products		5 batches were sampled	batch	25g	5	0							
- in total - HACPP or own checks by industry			sample	25g	122	0							

Raw material (liquid egg) for egg products					0								
Fishery products													
fish					0								
- HACPP or own checks by industry			sample	25g	221	0							
fresh		12 batches were sampled	batch	25g	12	0							
other													
(minced)		2 batches were sampled	batch	25g	2	0							
ready-to-eat		126 batches were sampled	batch	25g	309	0							
Other food													
- HACPP or own checks by industry (1)			sample	25g	1450	5	0	0	0	2	1	1	1

(1) : fruits, vegetables, spices, confectionery products, others

Footnote

One sample consists of 1-5 units. The number of units tested and results refer to each single unit. Data shown in this table refers to products of Latvian origin, imported products are not included.

2.1.4. Salmonella in animals

A. Salmonella spp. in Gallus gallus - breeding flocks for egg production and flocks of laying hens

Monitoring system

Sampling strategy

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

Look at Salmonella spp. in animal

B. Salmonella spp. in Gallus gallus - breeding flocks for meat production and broiler flocks

Monitoring system

Sampling strategy

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

Look at Salmonella spp. in animal

C. Salmonella spp in turkey - breeding flocks and meat production flocks

Monitoring system

Sampling strategy

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

Look at Salmonella spp. in animal

D. Salmonella spp in geese - breeding flocks and meat production flocks

Monitoring system

Sampling strategy

Breeding flocks

Look at Salmonella spp. in animal

E. Salmonella spp in ducks - breeding flocks and meat production flocks

Monitoring system

Sampling strategy

Breeding flocks

Look at Salmonella spp. in animal

F. Salmonella spp in pigs

Additional information

In 2004, Latvia had no program in place to control or monitor Salmonella spp. prevalence in pigs.

G. Salmonella spp. in bovine animals

Additional information

In 2004, Latvia had no program in place to control or monitor Salmonelle spp. prevalence in bovines.

H. Salmonella spp. in animal

Monitoring system

Sampling strategy

Sampling of poultry flocks is carried out according to the Council Directive 90/539/EEC and Council Directive 92/117/EC:
I Monitoring and control for S.pullorum and S.gallinarum in poultry breeding flocks and poultry flocks for egg production.
All adult poultry breeding flocks must be sampled during laying phase: at least 10% of the flock.
All adult poultry flocks for egg production must be sampled during laying phase:
1-20 birds: 100%
20-100 birds: not less than 20 birds
1000 birds or more: 1%, but not less than 100 birds
At the hatchery, preventive samples should be taken before every hatching. Samples must be taken from the holdings before introduction of chickens.
II Monitoring and control for S.typhimurium and S.enteritidis in poultry breeding flocks .
1. All egg production and meat production line birds reared for breeding must be sampled:
(a)day-old chicks
- samples must be taken from the internal linings of boxes in which the chicks are delivered to a holding;
- samples from the carcasses of chicks found to be dead on arrival
(b)pullets at four weeks of age
- pooled faeces samples
(c)pullets two weeks prior to entering the laying phase
- pooled faeces samples

2.All adult breeding flocks must be sampled:
1)at least every two weeks
a)breeding flocks whose eggs are hatched at the hatchery with a total incubator capacity of less than 1000 eggs - pooled faeces sample
b)breeding flocks whose eggs are hatched at the hatchery with a total incubator capacity of 1000 eggs or more
- pooled samples of meconium taken from 250 chicks hatched from eggs supplied to the hatchery from one breeding flock
- samples of carcasses of 50 chicks which are dead in the shells of eggs or which have been hatched from eggs supplied to the hatchery from one breeding flock.
2)such samples must also be taken from breeding flocks comprising less than 250 birds whose eggs are hatched in hatcheries with total incubator capacity of 1000 eggs or more.
3)Every eight weeks, the sampling provided for in point 2. must be replaced by offical sampling.
III Monitoring and control for S.typhimurium and S.enteritidis in poultry flocks for egg production.
(a)day-old chicks
- samples must be taken from the internal linings of boxes in which the chiks delivered to a holding;
- samples from the carcasses of chicks found to be dead on arrival
(b)pullets two weeks prior to entering the laying phase
- pooled faeces samples
(c)must be sampled three times during laying phase - in 30 weeks of age, in 50 weeks of age and 4 weeks before leaving for slaughter - pooled faeces samples
III Monitoring and control for S.typhimurium and S.enteritidis in broiler flocks.
(a)birds one week before leaving for slaughter - pooled faeces samples
All other animal herds are under the supervision of the state authorized veterinarians and are under the supervision of the regional offices of the Food and Veterinary Service. The Food and Veterinary Service (FVS) of the Republic of Latvia is a state administrative institution headed by the CVO and supervised by the Ministry of Agriculture. Regarding veterinary issues, FVS ensures unified state surveillance over prevention, control and eradication of animal contagious diseases and zoonoses, elaboration and implementaion of animal disease surveillance programmes. Every time when clinical symptoms give reasons to a suspicion on salmonellosis, individual samples of the diseased animal must be taken and examined bacteriologically for salmonellosis. Restrictions are imposed already in the case of suspicion of salmonellosis.

Frequency of the sampling

Animals at farm

Other: According to the Council Directive 90/539/EEC and Council Directive 92/117/EC

Type of specimen taken

Animals at farm

Other: Faeces; blood; day old chicks; down or dust taken from the

hatchers;swabs taken from the walls of the hatchery; litter or water from a drinker.

Case definition

Animals at farm

A positive case is a unit (flock, herd or individual animal) confirmed positive for Salmonella. In general, the flock or herd is epidemiological unit.

Diagnostic/analytical methods used

Animals at farm

Bacteriological method: ISO 6579:2002

Vaccination policy

Prophylactic animal vaccination against salmonellosis is prohibited in the Republic of Latvia. The only subscriber to the vaccines of salmonellosis is Food and Veterinary Service who will arange the import, usage, preservation and distribution of vaccines to carry out vaccination.

Measures in case of the positive findings or single cases

According to the Regulation of Cabinet of Ministers No 175, 30 April 2002 "Procedures for Prevention and Combating of Such Infectious Diseases as to Which Both Animals and Humans Susceptible", if zoonotic salmonella is confirmed in a flock by laboratory testing, FVS places the flock under supervision and controls the following provisions:
- bacteriological examination and measures are taken to investigate the source of infection
- installation of disinfection mats at the entrances and exits of the buildings.
- bacteriological examination of dead poultry
- prohibition of moving any birds to or from the affected flock
- persons who are not directly involved in taking care of the poultry are not permitted to enter buildings where infected poultry is kept
- prohibition with regards to movement of poultry meat or carcasses, animal feeding stuffs, tools, waste, litter, bedding or anything liable to transmit pathogenic agent without the authorisation by the Veterinary Inspector;
- prohibition for persons to leave the affected place without carrying out the necessary disinfection measures and without the authorisation by the Veterinary Inspector;
- non-incubated eggs from the flock must be destroyed or may be used for human consumption if they are treated in a manner that guarantees the elimination of zoonotic salmonella
- all birds, including day - old hicks, in the flock must be slaughtered or destroyed so as to reduce as much as possible the risk of spreading salmonella. Products derived from such birds may be placed on the market for human consumption if they are treated in a manner that guarantees the elimination of zoonotic salmonella
- poultry from affected flocks must be transported and slaughtered separately from other poultry
- animal feed, litter and other materials liable to be contaminated, shall be disinfected under the surveillance of the Veterinary Inspector or the authorised veterinarian; manure shall be disinfected or subject to biothermic treatment;
- slaughtering and destruction or treatment of eggs and poultry shall be recorded, showing the

time, place, and method of slaughtering and destruction, as well as the person responsible for each action.
- the control of movements of persons handling poultry, processing poultry carcases and eggs and dealing with vehicles carrying poultry, their carcases and eggs, shall be carried out;
- further measures are taken to reduce the occurrence of pests
- after carrying out the aforementioned operations, the holding, its surroundings, the vehicles, their equipment and other materials likely to be contaminated by the pathogenic agent of disease, shall be cleaned, washed and disinfected;
- the poultry which have died or been killed and all eggs shall be destroyed with the methods which minimize the risk of spreading disease.

Notification system in place

Regulation of Cabinet of Ministers Nr. 323, 28 august 1998 "The list of animal infectious diseases" determines animal infectious diseases which eradication is organised and managed by the State Veterinary Service.
Regulation of Cabinet of Ministers Nr. 175,30 April 2002 "Procedures for Prevention and Combatting of Such Infectious Diseases as to Which Both Animals and Humans are Susceptible" determines how to carry out prophylaxis and eradication of such infectious diseases (zoonoses) as to which both animals and humans are susceptible.
If an owner of an undertaking (company), owner of animals, hunter or head of laboratory determines zoonoses or he or she has suspicions regarding the illness of animals, he or she shall notify without delay an authorised veterinarian or a territorial unit of the Food and Veterinary Service therefore.

Table 3.2.1 Salmonella sp. in Poultry breeding flocks (Gallus gallus)

	Source of information	Remarks	Epidemiological unit	Flocks tested	Flocks positive	S. Enteritidis	S. Typhimurium
Gallus gallus							
elite breeding flocks for egg production line				0			
grandparent breeding flocks for egg production line				0			
parent breeding flocks for egg production line	OCS		flock	11	1	1	0
day-old chicks				0			
- during production period	OCS		flock	8	1	1	0
unspecified				0			
- during rearing period	OCS		flock	3	0	0	0
elite breeding flocks for meat prodcution line				0			
grandparent breeding flocks for meat production line				0			
parent breeding flocks for meat production line	OCS		flock	14	0	0	0
day-old chicks				0			
- during rearing period	OCS		flock	6	0	0	0
- during production period	OCS		flock	8	0	0	0
elite breeding flocks, unspecified				0			
grandparent breeding flocks, unspecified				0			
parent breeding flocks, unspecified				0			
- during rearing period				0			
- during production period				0			
day-old chicks (1)	OCS		sample	21	1	1	0
- HACPP or own checks by industry (3)			sample	62	0		
- in total - Control programme	OCS		flock	25	1	1	0
- in total - HACPP or own checks by industry (2)			sample	106	1	1	0

(1) : Data shown refer to number of samples, not flocks.
(2) : Data shown refer to number of samples, not flocks.
(3) : Data shown refer to number of samples, not flocks.

Footnote

OCS - official control sampling
Source of information for all data shown excluding data on HACCP or own checks by industry is the Food and Veterinary Service. Data on HACCP or own checks by industry are submitted by the State Veterinary Diagnostic Centre.

Table 3.2.2 Salmonella sp. in other commercial poultry

	Source of information	Remarks	Epidemiological unit	Flocks tested	Flocks positive	S. Enteritidis	S. Typhimurium	S. Infantis
Gallus gallus								
laying hens								
day-old chicks			sample	16	0			
- during rearing period			sample	2	0			
- during production period			sample	38	0			
unspecified				0				
broilers								
day-old chicks				0				
- during rearing period				0				
unspecified			sample	1	0			
unspecified								
day-old chicks				0				
- during rearing period				0				
- during production period				0				
unspecified				0				
Ducks								
breeding flocks, unspecified				0				
- during production period				0				
unspecified				0				
Geese								
breeding flocks, unspecified				0				
- during production period				0				
unspecified			sample	3	0			
Turkeys								
breeding flocks, unspecified				0				
- during production period				0				
unspecified			sample	2	0			
Quails								
- Control programme			sample	2	0			
- HACPP or own checks by industry			sample	6	3			3

Pheasants								
- HACPP or own checks by industry			sample	1	0			
Ostriches								
- HACPP or own checks by industry			sample	1	0			

Footnote

Data shown refer to number of samples, not flocks.

Table 3.2.3 Salmonella sp. in non-commercial poultry and birds

	Source of information	Remarks	Epidemiological unit	Flocks tested	Flocks positive	S. Enteritidis	S. Typhimurium
Pigeons				0			
Guinea fowl				0			
Quails				0			
Pheasants				0			
Partridges				0			
Ostriches				0			

Table 3.2.4 Salmonella sp. in animals (non poultry)

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. Choleraesuis	Salmonella spp.	S. Ibadan	S. Brazos	S. enterica subsp. diarizonae	S. Derby	S. enterica subsp. arizonae	S. Morocco	S. Carnac	S. Aarhus	S. Larochelle	S. Dublin
Cattle (bovine animals)			animal	22	1														1
Sheep				0															
Goats				0															
Pigs																			
breeding animals				0															
fattening pigs				0															
unspecified			animal	63	5			1	3				1						
Solipeds			animal	2	0														
Fur animals			animal	25	0														
Pet animals			animal	52	0														
Zoo animals			animal	75	45	3			18	1	2	4		2	12	1	1	1	

2.1.5. Salmonella in feedstuffs

A. Salmonella spp. in feed

Additional information

In 2004, no special surveillance programme was in place to control Salmonella spp. in feedingstuff. Samples tested were taken in the frame of general feed surveillance programme. The method used for testing was LVS EN ISO 6579:2003.

Table 3.1.1 Salmonella sp. in feed material of animal origin (Part A)

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. Infantis	S. Montevideo	S. Georgia	S. Senftenberg	S. Koumra	S. Ohio	S. Brazzaville	S. Leopoldville	S. Papuana	S. Menston	S. Stanley	Salmonella spp.
Feed material of land animal origin																				
Dairy products					0															
Meat meal					0															
Meat and bone meal					0															
- HACPP or own checks by industry			sample	25g	14	1			1											
Bone meal					0															
- HACPP or own checks by industry			sample	25g	7	0														
Greaves					0															
Poultry offal meal					0															
- HACPP or own checks by industry			sample	25g	4	0														
Feather meal					0															
Blood meal					0															
Animal fat					0															
Feed material of marine animal origin																				
Fish meal			sample	25g	4	1									1					

- HACPP or own checks by industry			sample	25g	576	42				2	23	2	1	4	1	2	1	1		1
Fish oil					0															
Fish silage					0															
other fish products					0															
Compound feedingstuffs for fur animal																				
- in total - HACPP or own checks by industry			sample	25g	9	1													1	

Footnote

Source of information for all data except data on HACCP is the Food and Veterinary Service. Data on HACCP or own checks by industry were submitted by the State Veterinary Diagnostic Centre.

Table 3.1.1 Salmonella sp. in feed material of animal origin (Part B)

	S. 6,7:-:e,n,z15
Feed material of land animal origin	
Dairy products	
Meat meal	
Meat and bone meal	
- HACPP or own checks by industry	
Bone meal	
- HACPP or own checks by industry	
Greaves	
Poultry offal meal	
- HACPP or own checks by industry	
Feather meal	
Blood meal	
Animal fat	
Feed material of marine animal origin	
Fish meal	4
- HACPP or own checks by industry	

Fish oil	
Fish silage	
other fish products	
Compound feedingstuffs for fur animal	
- in total - HACPP or own checks by industry	

Footnote

Source of information for all data except data on HACCP is the Food and Veterinary Service. Data on HACCP or own checks by industry were submitted by the State Veterinary Diagnostic Centre.

Table 3.1.2 Salmonella sp. in feed of vegetable origin

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. Maiduguri
Feed material of cereal grain origin									
Barley derived					0				
- HACPP or own checks by industry			sample	25g	2	0			
Wheat derived					0				
- HACPP or own checks by industry			sample	25g	13	0			
Maize					0				
derived					0				
- HACPP or own checks by industry			sample	25g	3	0			
other cereal grain derived					0				
- HACPP or own checks by industry			sample	25g	20	0			
Feed material of oil seed or fruit origin									
Groundnut derived					0				
Rape seed derived					0				
- HACPP or own checks by industry			sample	25g	2	0			
Palm kernel derived					0				
Soya (bean) derived					0				
- HACPP or own checks by industry			sample	25g	22	0			
Cotton seed derived					0				
Sunflower seed derived					0				
- HACPP or own checks by industry			sample	25g	12	1			1
Linseed derived					0				
other oil seeds derived					0				
other feed material									
Legume seeds and similar products					0				
Tubers, roots and similar products					0				
Other seeds and fruits					0				

Forages and roughages					0					
Other plants					0					
- HACPP or own checks by industry			sample	25g	2	0				

Footnote

There were no official samples taken from feed material of vegetable origin in 2004.

Table 3.1.3 Salmonella sp. in compound feedingstuff

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. Edinburg	S. Tennessee	S. Ohio	S. Infantis	S. Haifa
Compound feedingstuffs for cattle													
Process control			sample	25g	2	0							
- in total - HACPP or own checks by industry			sample	25g	6	0							
Compound feedingstuffs for pigs													
Process control (1)			sample	25g	2	0							
Final product			sample	25g	3	0							
- in total - HACPP or own checks by industry			sample	25g	64	0							
Compound feedingstuffs for poultry (non specified)													
Final product (2)			sample	25g	1	0							
- in total - HACPP or own checks by industry			sample	25g	23	2				1	1		
Compound feedingstuffs for poultry - laying hens													
Final product			sample	25g	35	1			1				
- in total - HACPP or own checks by industry			sample	25g	16	0							

Compund feedingstuffs for poultry - broilers													
Final Product		sample	25g	3	0								
- in total - HACPP or own checks by industry		sample	25g	72	1								1
Pet food													
Dog snacks (pig ears, chewing bones)		sample	25g	4	1							1	
Final product		sample	25g	2	0								
- in total - HACPP or own checks by industry		sample	25g	28	0								

(1) : Samples were taken from a mobile mixer.
(2) : Sample was taken from feedingstuff for geese.

2.1.6. *Salmonella* serovars and phagetype distribution

The methods of collecting, isolating and testing of the Salmonella isolates are described in the chapters above respectively for each animal species, foodstuffs and humans. The serotype and phagetype distributions can be used to investigate the sources of the Salmonella infections in humans. Findings of same serovars and phagetypes in human cases and in foodstuffs or animals may indicate that the food category or animal species in question serves as a source of human infections. However as information is not available from all potential sources of infections, conclusions have to be drawn with caution.

Table 3.3.3 Salmonella serovars in animals

Serovars		Pigs		Other poultry		Zoo animals		Quails		Cattle (bovine animals)		Gallus gallus	
Sources of isolates		M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
Number of isolates in the laboratory	N=		5				45		3		1		8
Number of isolates serotyped	N=		5				45		3		1		8
Number of isolates per type													
S. Aarhus (1)							1						
S. Brazos (2)							2						
S. Carnac (3)							1						
S. Choleraesuis (4)			1										
S. Derby (5)			1										
S. Dublin (6)											1		
S. Enteritidis (7)							3						8
S. Ibadan (8)							1						
S. Infantis (9)									3				
S. Larochelle (10)							1						
S. Morocco (11)							12						
Salmonella spp. (12)			3				19						
S. enterica subsp. arizonae (13)							2						
S. enterica subsp. diarizonae (14)							3						
Total of typed *Salmonella*isolates													

(1) : 1
(2) : 1
(3) : 1
(4) : 1
(5) : 1
(6) : 1
(7) : 1
(8) : 1
(9) : 1
(10) : 1
(11) : 1
(12) : 1
(13) : 1
(14) : 1

Footnote

(*) M : Monitor, C : Clinical

Table 3.3.4 Salmonella serovars in food

Serovars		Broiler meat		Bovine meat		Pig meat		Other poultry		Other products of animal origin		Other animals or mixed meat	
Sources of isolates		M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
Number of isolates in the laboratory	N=	30	2			2	1				5		3
Number of isolates serotyped	N=	30	2			2	1				5		3
Number of isolates per type													
S. Derby (1)						1							
S. Enteritidis (2)		30	1										2
S. Kentucky (3)											1		
S. Meleagridis (4)											1		
S. Stanley (5)											2		
S. Typhimurium (6)						1	1						
S. Wagenia (7)											1		
S. 6,7:-:e,n,z15 (8)			1										
Salmonella spp. (9)													1
Total of typed *Salmonella*isolates													

(1) : 1
(2) : 1
(3) : 1

(4) : 1
(5) : 1
(6) : 1
(7) : 1
(8) : 1
(9) : 1

Footnote

(*) M : Monitor, C : Clinical

Table 3.3.5 S.Enteridis phagetypes in animals

Phagetype		Cattle (bovine animals)		Pigs		Gallus gallus		Other poultry	
Sources of isolates		M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
Number of isolates in the laboratory	N=								
Number of isolates serotyped	N=								

Footnote

(*) M : Monitor, C : Clinical
Phage-typing was not performed.

Table 3.3.6 S.Enteridis phagetypes in food

Phagetype		Bovine meat		Pig meat		Broiler meat		Other poultry		Other products of animal origin	
Sources of isolates		M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
Number of isolates in the laboratory	N=										
Number of isolates serotyped	N=										

Footnote

(*) M : Monitor, C : Clinical
Phage-typing was not performed.

Table 3.3.9 S. Enteritidis phagetypes in humans

Phagetype		humans	
Sources of isolates		M(*)	C(*)
Number of isolates in the laboratory	N=		
Number of isolates serotyped	N=		

Footnote

(*) M : Monitor, C : Clinical
No data available.

Table 3.3.7 Salmonella Typhimurium phagetypes in animals

Phagetype		Cattle (bovine animals)		Pigs		Gallus gallus		Other poultry	
Sources of isolates		M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
Number of isolates in the laboratory	N=								
Number of isolates serotyped	N=								

Footnote

(*) M : Monitor, C : Clinical
Phage-typing was not performed.

Table 3.3.8 Salmonella Typhimurium phagetypes in food

Phagetype		Bovine meat		Pig meat		Broiler meat		Other poultry		Other products of animal origin	
Sources of isolates		M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
Number of isolates in the laboratory	N=										
Number of isolates serotyped	N=										

Footnote

(*) M : Monitor, C : Clinical
Phage-typing was not performed.

Table 3.3.10 S. Typhimurium phagetypes in humans

Phagetype		humans	
Sources of isolates		M(*)	C(*)
Number of isolates in the laboratory	N=		
Number of isolates serotyped	N=		

Footnote

(*) M : Monitor, C : Clinical
No data available.

2.1.7. Antimicrobial resistance in *Salmonella* isolates

Antimicrobial resistance is the ability of certain microorganisms to survive or grow in the presence of a given concentration of antimicrobial agent that usually would kill or inhibit the microorganism species in question. Antimicrobial resistant Salmonella strains may be transferred from animals or foodstuffs to humans.

A. Antimicrobial resistance in Salmonella in cattle

Control program/mechanisms

The control program/strategies in place

In 2004, Latvia had no control program in place on Salmonella in cattle.

B. Antimicrobial resistance in Salmonella in pigs

Control program/mechanisms

The control program/strategies in place

In 2004, Latvia had no program inplace to control Salmonella prevalence in pigs.

Table 3.2.5.2 Antimicrobial susceptibility testing of S.Enteritidis in animals

	S. Enteritidis							
	Cattle (bovine animals)		**Pigs**		**Gallus gallus**		**Turkeys**	
Isolates out of a monitoring program (1)					yes			
Number of isolates available in the laboratory	0		0		4		0	
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline					3	33%		
Amphenicols								
Chloramphenicol					3	0%		
Cephalosporin								
Cefotaxim					4	0%		
Cefuroxim					4	0%		
Fluoroquinolones								
Ciprofloxacin					1	0%		
Quinolones								
Nalidixic acid					1	0%		
Trimethoprim					2	0%		
Aminoglycosides								
Streptomycin					2	0%		
Gentamicin					4	0%		
Neomycin					3	0%		
Kanamycin					3	0%		
Trimethoprim + sulfonamides					2	0%		
Penicillins								
Ampicillin					3	0%		
Number of multiresistant isolates								
fully sensitives					3	75%		
resistant to 1 antimicrobial					1	25%		

(1) : Data refer to isolates both out of official monitoring program and own check by industry.

Table 3.2.7.6 Antimicrobial susceptibility testing of S. Enteritidis in humans - qualitative data

	S. Enteritidis	
	humans	
Isolates out of a monitoring program		
Number of isolates available in the laboratory		
Antimicrobials:	**N**	**%R**

Footnote

No data available.

Table 3.2.5.3 Antimicrobial susceptibility testing of S.Typhimurium in animals

	S. Typhimurium							
	Cattle (bovine animals)		**Pigs**		**Gallus gallus**		**Turkeys**	
Isolates out of a monitoring program								
Number of isolates available in the laboratory								
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**

Footnote

In 2004, S. typhimurium was not isolated from animal samples.

Table 3.2.7.7 Antimicrobial susceptibility testing of S. Typhimurium in humans - qualitative data

	S. Typhimurium	
	humans	
Isolates out of a monitoring program		
Number of isolates available in the laboratory		
Antimicrobials:	**N**	**%R**

Footnote

No data available.

Table 3.2.5.1 Antimicrobial susceptibility testing of Salmonella spp. in animals

	Salmonella spp.									
	Cattle (bovine animals)		**Pigs**		**Gallus gallus**		**Turkeys**		**Zoo animals**	
Isolates out of a monitoring program	no		no						no	
Number of isolates available in the laboratory	1		3		0		0		16	
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline			3	100%					15	0%
Amphenicols										
Chloramphenicol	1	0%	1	0%					16	0%
Cephalosporin										
Cefotaxim	1	0%	2	0%						
Cefuroxim	1	0%	2	0%						
Fluoroquinolones										
Ciprofloxacin	1	0%	3	0%					15	0%
Quinolones										
Nalidixic acid			2	0%					13	8%
Trimethoprim			1	0%					15	0%
Aminoglycosides										
Streptomycin	1	0%	3	33%					3	0%
Gentamicin			3	0%					15	0%
Neomycin	1	0%	3	0%					15	0%
Kanamycin	1	0%	3	0%					14	0%
Trimethoprim + sulfonamides									13	0%
Penicillins										
Ampicillin	1	0%	2	0%					16	6%
Number of multiresistant isolates										
fully sensitives	1	100%	0						15	94%
resistant to 1 antimicrobial	0		2	67%					0	
resistant to 2 antimicrobials	0		1	33%					1	6%
resistant to 3 antimicrobials	0		0						0	
resistant to 4 antimicrobials	0		0						0	
resistant to >4 antimicrobials	0		0						0	

Table 3.2.5.5 Antimicrobial susceptibility testing of Salmonella spp. in food

	Salmonella spp.									
	Broiler meat		**Other poultry meat**		**Pig meat**		**Bovine meat**		**Poultry meat - in total**	
Isolates out of a monitoring program (1)					no				yes	
Number of isolates available in the laboratory					4		0		22	
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline					0				17	0%
Amphenicols										
Chloramphenicol					2	0%			20	5%
Cephalosporin										
Cefotaxim					3	0%			20	0%
Cefuroxim					3	0%			21	0%
Fluoroquinolones										
Ciprofloxacin					2	0%			17	0%
Quinolones										
Nalidixic acid					3	0%			6	0%
Trimethoprim					2	50%			6	17%
Aminoglycosides										
Streptomycin					2	100%			18	6%
Gentamicin					4	25%			5	0%
Neomycin					4	0%			7	0%
Kanamycin					3	33%			17	6%
Trimethoprim + sulfonamides					2	50%			6	17%
Penicillins										
Ampicillin					4	75%			19	0%
Number of multiresistant isolates										
fully sensitives					1	25%			18	81%
resistant to 1 antimicrobial					0				1	5%
resistant to 2 antimicrobials					2	50%			3	14%
resistant to 3 antimicrobials					0				0	
resistant to 4 antimicrobials					0				0	
resistant to >4 antimicrobials					1	25%			0	

(1) : Concerning isolates from poultry meat: data refer to both - isolates out of monitoring programs and own checks by industry.

Table 3.2.7.5 Antimicrobial susceptibility testing of Salmonella spp. in humans - qualitative data

	Salmonella spp.	
	humans	
Isolates out of a monitoring program		
Number of isolates available in the laboratory		
Antimicrobials:	**N**	**%R**

Footnote

No data available.

Table 3.2.6 Breakpoints for antibiotic resistance of Salmonella in Animals

Test Method Used

Disc diffusion
Agar dilution
Broth dilution
E-test

Standards used for testing

NCCLS
CASFM

Subject to quality control

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		disk content	breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Tetracycline	NCCLS						30	14	18	19
Amphenicols										
Chloramphenicol	NCCLS						30	12	17	18
Florfenicol										
Fluoroquinolones										
Ciprofloxacin	NCCLS						5	15	20	21
Enrofloxacin										
Quinolones										
Nalidixic acid	NCCLS						30	13	18	19
Trimethoprim	NCCLS						5	10	15	16
Sulfonamides										
Sulfonamide										
Aminoglycosides										
Streptomycin	NCCLS						10	11	14	15
Gentamicin	NCCLS						10	12	14	15
Neomycin	NCCLS						30	12	16	17
Kanamycin	NCCLS						30	13	17	18
Trimethoprim + sulfonamides	NCCLS						25	10	15	16
Cephalosporin										
Cefotaxim	NCCLS						30	14	22	23
Cefuroxim	NCCLS						30	14	17	18
3rd generation cephalosporins										
Penicillins										
Ampicillin	NCCLS						10	13	16	17

Table 3.2.6 Breakpoints for antibiotic resistance of Salmonella in Food

Test Method Used

Disc diffusion
Agar dilution
Broth dilution
E-test

Standards used for testing

NCCLS
CASFM

Subject to quality control

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		disk content	breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Tetracycline										
Amphenicols										
Chloramphenicol										
Florfenicol										
Fluoroquinolones										
Ciprofloxacin										
Enrofloxacin										
Quinolones										
Nalidixic acid										
Trimethoprim										
Sulfonamides										
Sulfonamide										
Aminoglycosides										
Streptomycin										
Gentamicin										
Neomycin										
Kanamycin										
Trimethoprim + sulfonamides										
Cephalosporin										
Cefotaxim										
Cefuroxim										
3rd generation cephalosporins										
Penicillins										
Ampicillin										

Table 3.2.6 Breakpoints for antibiotic resistance of Salmonella in Feedingstuff

Test Method Used

- Disc diffusion
- Agar dilution
- Broth dilution
- E-test

Standards used for testing

- NCCLS
- CASFM

Subject to quality control

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		disk content	breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Tetracycline	NCCLS						30	14	18	19
Amphenicols										
Chloramphenicol	NCCLS						30	12	17	18
Florfenicol										
Fluoroquinolones										
Ciprofloxacin	NCCLS						5	15	20	21
Enrofloxacin										
Quinolones										
Nalidixic acid	NCCLS						30	13	18	19
Trimethoprim	NCCLS						5	10	15	16
Sulfonamides										
Sulfonamide										
Aminoglycosides										
Streptomycin	NCCLS						10	11	14	15
Gentamicin	NCCLS						10	12	14	15
Neomycin	NCCLS						30	12	16	17
Kanamycin	NCCLS						30	13	17	18
Trimethoprim + sulfonamides	NCCLS						25	10	15	16
Cephalosporin										
Cefotaxim	NCCLS						30	14	22	23
Cefuroxim	NCCLS						30	14	17	18
3rd generation cephalosporins										
Penicillins										
Ampicillin	NCCLS						10	13	16	17

Table 3.2.6 Breakpoints for antibiotic resistance of Salmonella in Humans

Test Method Used

- Disc diffusion
- Agar dilution
- Broth dilution
- E-test

Standards used for testing

- NCCLS
- CASFM

Subject to quality control

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		disk content	breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Tetracycline										
Amphenicols										
Chloramphenicol										
Florfenicol										
Fluoroquinolones										
Ciprofloxacin										
Enrofloxacin										
Quinolones										
Nalidixic acid										
Trimethoprim										
Sulfonamides										
Sulfonamide										
Aminoglycosides										
Streptomycin										
Gentamicin										
Neomycin										
Kanamycin										
Trimethoprim + sulfonamides										
Cephalosporin										
Cefotaxim										
Cefuroxim										
3rd generation cephalosporins										
Penicillins										
Ampicillin										

Footnote

No data available.

2.2. CAMPYLOBACTERIOSIS

2.2.1. General evaluation of the national situation

A. Thermophilic Campylobacter General evaluation

History of the disease and/or infection in the country

There are no control programmes in Latvia concerning Thermophilic Campylobacter in feed or animals. Campylobacter in food has been monitored for the first time in 2004.
Campylobacteriosis is a notifiable disease in humans and animals.

2.2.2. Campylobacteriosis in humans

A. Thermophilic Campylobacter in humans

Case definition

Possible : N.A.
Probable : A clinically compatible case with an epidemiological link.
Confirmed : A clinically compatible case that islaboratory confirmed.

Diagnostic/analytical methods used

Fecal culture for campylobacteres and related organisms.

History of the disease and/or infection in the country

The epidemiological surveillance data suggest that the incidence of campylobacteriosis in Latvia during the last 5 years has been low, which might be related to underdiagnosing of such cases. Since 1999, the highest incidence has been registered in the year 2000 - 4 cases (0,17 cases per 100 000 population). During last 4 years, cases of campylobacteriosis have been registered in adults, mainly in the age group of 18 - 39 years.

National evaluation of the recent situation, the trends and sources of infection

These data do not reflect the real situation in Latvia concerning human cases of campylobacteriosis. Most of the people do not consult a doctor, or the doctor doesn`t carry out any further investigations.

Table 6.3.A Campylobacteriosis in man - species/serotype distribution

Campylobacter	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc	unknown status
	0	0	0	0	0	0	0
C. coli	0	0	0	0	0	0	0
C. jejuni	0	0	0	0	0	0	0
C. upsaliensis	0	0	0	0	0	0	0

2.2.3. Campylobacter in foodstuffs

A. Thermophilic Campylobacter in Broiler meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

Inspectors of the Food and Veterinary Service are taking the samples. One sample consists of 5 subsamples or units. Every unit is packed and stored seperatly, and also laboratory testing is performed on each unit. For laboratory testing, 25g of each unit are taken for further investigations.

At retail

Inspectors of the Food and Veterinary Service are taking the samples. One sample consists of 5 subsamples or units. Every unit is packed and stored seperatly, and also laboratory testing is performed on each unit. For laboratory testing, 25g of each unit are taken for further investigations.

Frequency of the sampling

At slaughterhouse and cutting plant

Sampling distributed evenly throughout the year

At meat processing plant

Sampling distributed evenly throughout the year

At retail

Sampling distributed evenly throughout the year

Type of specimen taken

At slaughterhouse and cutting plant

Fresh meat

At retail

Meat products: fresh meat and meat products

Definition of positive finding

At slaughterhouse and cutting plant

None of the subsamples is allowed to contain Campylobacter spp. The sample is considered positive, if one or more of the subsamples are positive.

At retail

None of the subsamples is allowed to contain Campylobacter spp. The sample is considered positive, if one or more of the subsamples are positive.

Diagnostic/analytical methods used

At slaughterhouse and cutting plant

Bacteriological method: ISO 10272:1995

At meat processing plant

Bacteriological method: ISO 10272:1995

At retail

Bacteriological method: ISO 10272:1995

Control program/mechanisms

The control program/strategies in place

Coordinated programme of the European Commission according to the recommendations of 19 december 2003 regarding the bacteriological safety of fresh poultry meat.

Measures in case of the positive findings or single cases

The inspector immediatly has to perform an inspection at the slaughterhouse or at the store. He decides what to do with the rest of the batch, if there are still products left. The inspector also decides on the actions that have to be taken in the company, like asking for HACCP system improvements etc.). Desinfection has to be carried out.

Table 6.2 Thermophilic Campylobacter spp. in food

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	C. coli	C. lari	C. upsaliensis	C. jejuni	Campylobacter spp.	C. hyointestinalis	C. jejuni subsp. doylei
Bovine meat												
fresh												
- at slaughter					0							
- at processing plant					0							
- at retail					0							
meat products												
- at slaughter					0							
- at processing plant					0							
- at retail					0							
Pig meat												
fresh												
- at slaughter					0							
- at processing plant					0							
- at retail					0							
meat products												
- at slaughter					0							
- at processing plant					0							
- at retail					0							
Poultry meat												

fresh													
- at slaughter	22 batches were sampled	batch	25	110	1	0	0	1	0	0	0	2	
- at processing plant				0									
- at retail	73 batches were sampled	batch	25	365	0	0	0	8	0	0	0	0	
- import		sample	25	238	1	0	0	2	0	1	0	0	
meat products													
- at slaughter				0									
- at processing plant				0									
- at retail				0									
Other meat													
fresh													
- at slaughter				0									
- at processing plant				0									
- at retail				0									
meat products													
- at slaughter				0									
- at processing plant				0									
- at retail				0									
cow milk													
raw				0									
Dairy products													
ready-to-eat				0									
Fishery products													
fish				0									

Footnote

A sample consists of 1-5 units. Numbers of samples tested and results refer to each single unit.
Source of information for all data except import is the Food and veterinary Service. Samples from imports have been taken by the inspectors of the Sanitary Border Inspection; they were tested and results were submitted by the State Veterinary Diagnostic Centre.

2.2.4. Campylobacter in animals

Table 6.1.1 Thermophilic Campylobacter spp. in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	C. jejuni	C. coli	C. lari	C. upsaliensis
Cattle (bovine animals)									
dairy cows				0					
others			sample	9	0				
Sheep				0					
Goats				0					
Pigs				0					
Solipeds				0					
Gallus gallus									
broilers									
- at farm				0					
- at slaughter				0					
- in total			sample	6	2	2			
Other poultry				0					
Pet animals									
dogs				0					
cats				0					
Wildlife				0					
Other animals			sample	3	0				

Footnote

Animals were tested in the context of epidemiological investigations. Source of information is the State Veterinary Diagnostic Centre.

2.2.5. Antimicrobial resistance in *Campylobacter* isolates

Table 6.1.2 Antimicrobial susceptibility testing of Campylobacter in animals

	Campylobacter spp.					
	Cattle (bovine animals)		**Pigs**		**Poultry**	
Isolates out of a monitoring program						
Number of isolates available in the laboratory						
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**

Footnote

Antimicrobial susceptability was not tested.

Table 6.1.4 Antimicrobial susceptibility testing of Campylobacter in food

	Campylobacter spp.							
	Broiler meat		**Other poultry meat**		**Pig meat**		**Bovine meat**	
Isolates out of a monitoring program								
Number of isolates available in the laboratory								
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**

Footnote

Antimicrobial susceptability was not tested.

Table 6.1.3 Antimicrobial susceptibility testing of Campylobacter in humans

	Campylobacter spp.	
	humans	
Isolates out of a monitoring program		
Number of isolates available in the laboratory		
Antimicrobials:	**N**	**%R**

Footnote

No data available.

Table 6.1.6 Breakpoints used for antimicrobial susceptibility testing of Campylobacter in Animals

Test Method Used

Disc diffusion
Agar dilution
Broth dilution
E-test

Standards used for testing

NCCLS
CASFM

Subject to quality control

Campylobacter	Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		disk content	breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Tetracycline										
Fluoroquinolones										
Ciprofloxacin										
Quinolones										
Nalidixic acid										
Aminoglycosides										
Gentamicin										
Macrolides										
Erythromycin										
Penicillins										
Ampicillin										

Footnote

Antimicrobial susceptability was not tested.

Table 6.1.6 Breakpoints used for antimicrobial susceptibility testing of Campylobacter in Food

Test Method Used

Disc diffusion
Agar dilution
Broth dilution
E-test

Standards used for testing

NCCLS
CASFM

Subject to quality control

Campylobacter	Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		disk content	breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Tetracycline										
Fluoroquinolones										
Ciprofloxacin										
Quinolones										
Nalidixic acid										
Aminoglycosides										
Gentamicin										
Macrolides										
Erythromycin										
Penicillins										
Ampicillin										

Footnote

Antimicrobial susceptability was not tested.

2.3. LISTERIOSIS

2.3.1. General evaluation of the national situation

A. Listeriosis general evaluation

History of the disease and/or infection in the country

Monitoring of Listeria monocytogenes in food has been started in 2003.

2.3.2. Listeriosis in humans

A. Listeriosis in humans

Reporting system in place for the human cases

Official reports about human cases in the country are provided monthly by all 33 regional PHA offices. The regional epidemiologists report to the regional office, which sends the reports to the central PHA. The official reports contain statistical overviews and additional informations in the context of epidemiological investigations.

Case definition

Possible : N.A.
Probable : N.A.
Confirmed : A clinically compatible case that is laboratory confirmed.

Diagnostic/analytical methods used

Clinical Microbiology Procedures Handbook
Microbiological identification of listeria.
Commercial systems for identification API Listeria.

Notification system in place

In consistence with the Order of Cabinet of Ministers of the Republic of Latvia Nr. 7, 05.01.1999, "About the order of registration of infectious diseases", medical staff notifies human cases of listeriosis.
Human cases of infectious diseases have to be notified within 12 hours orally or written.

History of the disease and/or infection in the country

The registration in Latvia started in mid-1990. The epidemiological surveillance data show that in Latvia during the last 6 years since 1998, the highest incidence rate was registered in 2000 - 36 cases (1,49 cases per 100 000 population). Since 2001, the incidence rate of the disease has been below 1 caseper 100 000 population. 1 case of illness with lethal outcome was reported in 2001.

Table 7.2.A Listeriosis in man - species/serotype distribution

Listeria	Cases	Cases Inc
	5	0
Listeria spp.	5	0,22
congenital cases	2	0,09
deaths	1	0,04

Table 7.2.B Listeriosis in man - age distribution

Age Distribution	L. monocytogenes			Listeria spp.		
	All	M	F	All	M	F
<1 year	2	1	1	2	1	1
1 to 4 years						
5 to 14 years						
15 to 24 years						
25 to 44 years	1		1	2		2
45 to 64 years	1	1		1	1	
65 years and older						
Age unknown						
Total :	4	2	2	5	2	3

2.3.3. Listeria in foodstuffs

A. L. monocytogenes in food

Monitoring system

Sampling strategy

Inspectors of the Food and Veterinary Service are taking the samples. One sample consists of 5 subsamples or units. Every unit is packed and stored seperatly, and also laboratory testing is performed on each unit. For laboratory testing, 25g of each unit are taken for further investigations

Frequency of the sampling

At the production plant

Sampling distributed evenly throughout the year

At retail

Sampling distributed evenly throughout the year

Type of specimen taken

At the production plant

cold smoked meat products, not packed dairy products, cold smoked fishery products

At retail

cold smoked meat products, unpasteurised milk, sprouts, vacuum-packed fresh vegetables, cold smoked fishery products

Definition of positive finding

At the production plant

None of the subsamples /units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive.

At retail

None of the subsamples /units is allowed to contain Salmonella spp. The sample is considered positive, if one or more of the units are positive.

Diagnostic/analytical methods used

At the production plant

Bacteriological method: ISO 11290- -1 (1996):1996, 1998

At retail

Bacteriological method: ISO 11290- -1 (1996):1996, 1998

Control program/mechanisms

The control program/strategies in place

National control programme on Salmonella, based on the Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified foodborne zoonotic agents.

Measures in case of the positive findings

The inspector immediatly has to notify about the infected food product to the Food and Veterinary Service Food Surveillance department. He controls if food is handled in compliance with hygiene regulations at all steps of the food chain in the company and takes environmental samples from working surfaces which are in direct contact with the final product during the production process.
10-30 environmental samples have to be taken, and additionally samples are taken from the product that has been positive for Listeria monocytogenes.
If one of these samples is positive for L. monocytogenes, the product batch has to be recalled from the market.
Inspectors also control the improvement of the sanitary conditions in the company.

Table 7.1 Listeria monocytogenes in food

	Source of information	Remarks	Epidemiological unit	Sample weight	Definition used	Units tested	<100 cfu/g	>100 cfu/g	L. monocytogenes
Bovine meat									
meat products									
ready-to-eat									
- at processing plant		2 batches were sampled	batch	25g		10			0
- at processing plant - environmental sample						0			
- at retail						0			
Pig meat									
meat products									
ready-to-eat									
- at processing plant		9 batches were sampled	batch	25g		45			0
- at processing plant - environmental sample						0			
- at retail						0			
Poultry meat									
meat products									
ready to eat									
- at processing plant						0			
- at processing plant - environmental sample						0			
- at retail						0			
Other meat									
meat products									
ready-to-eat									
- at processing plant						0			
- at processing plant - environmental sample						0			
- at retail						0			
Cheeses									
- at processing plant		21 batches were sampled	batch	25g		105			0
- at retail		2 batches were sampled	batch	25g		10			1
Dairy products									
other products									

ready-to-eat									
- at processing plant		20 batches were sampled	batch	25g		100			0
- at retail		14 batches were sampled	batch	25g		70			0
- import			batch	25g		358			0
ready-to-eat									
- at processing plant - environmental sample						0			
- in total - HACPP or own checks by industry (1)			sample	25g		531			1
cow milk									
raw									
for direct human consumption									
- HACPP or own checks by industry			sample	25g		10			0
- monitoring programme			sample	25g		55			2
Fishery products									
fish									
smoked									
- at processing plant		30 batches were sampled	batch	25g		150			3
- at processing plant - environmental sample						0			
- at retail		15 batches were sampled	batch	25g		75			0
other									
- at processing plant - environmental sample						0			
- at retail						0			
- in total - HACPP or own checks by industry			sample	25		2			0
Mixed meat									
- in total - HACPP or own checks by industry (2)			sample	25		41			0
meat products									
ready-to-eat									
- at processing plant		33 batches were sampled	batch	25		165			11
- at processing plant - environmental sample		11 batches were sampled	batch	25		11			0

- at retail		10 batches were sampled	batch	25		30			0
- import			sample	25		40			0
Fruit & Vegetables									
- HACPP or own checks by industry			sample	25		98			15
Other food									
- Control programme (3)			sample	25		6			0

(1) : except raw milk
(2) : all raw meat - 7 samples; all meat products - 34 samples
(3) : drinking water from water tap and well

Footnote

A sample consists of 1-5 units. Laboratory results refer to units.
Source fo information for all data except HACCP and import is the Food and veterinary Service. Imports were sampled by the Sanitary Border Inspection and results of the investigations were submitted by the State Veterinary Diagnostic Centre, as were the data on HACCP or own checks by industry.

2.4. VEROCYTOTOXIC ESCHERICHIA COLI

2.4.1. General evaluation of the national situation

A. Verotoxigenic Escherichia coli infections general evaluation

History of the disease and/or infection in the country

In 2004, no control or monitoring programme was in place regarding VTEC in food. In 2005, Latvia started such a monitoring programme.

2.4.2. Verocytotoxic Escherichia coli in humans

A. Verotoxigenic Escherichia coli infections in humans

Reporting system in place for the human cases

Official reports about human cases in the country are provided monthly by all 33 regional PHA offices. The regional epidemiologists report to the regional office, which sends the reports to the central PHA. The official reports contain statistical overviews and additional informations in the context of epidemiological investigations.

Case definition

Possible : N.A.
Probable : A laboratory confirmed isolate without clinical information or a case with clinical symptoms that has an epidemiological link
Confirmed : A clinically compatible case that is laboratory confirmed

Diagnostic/analytical methods used

Clinical Microbiology Procedures Handbook.
"Test methods used in the identification of commonly isolated aerobic gram-negative bacteria."
"Commercial systems for identification kits API 20E, ID 32E".

Notification system in place

In consistence with the Order of Cabinet of Ministers of the Republic of Latvia Nr. 7, 05.01.1999, "About the order of registration of infectious diseases", medical staff notifies human cases of escherichiosis.
Human cases of infectious diseases have to be notified within 12 hours orally or written.

Table 11.3.A Verocytotoxic Escherichia coli infections in man - species/serotype distribution

Pathogenic Escherichia coli	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
HUS						
- clinical cases						
- lab. confirmed cases						
- caused by O157 (VT+)						
- caused by other VTEC						
E.coli infect. (except HUS)						
- laboratory confirmed						
- caused by 0157 (VT+)						
- caused by other VTEC						

Footnote

No cases in 2004

2.4.3. Pathogenic Escherichia coli in foodstuffs

Table 11.2 Verocytotoxic Escherchia coli in food

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	VTEC O 157	VTEC O 157:H7
Bovine meat								
fresh								
- at slaughter					0			
- at processing plant					0			
- at retail					0			
meat products								
- at slaughter					0			
- at processing plant					0			
- at retail					0			
Pig meat								
fresh								
- at slaughter					0			
- at processing plant					0			
- at retail					0			
meat products								
- at slaughter					0			
- at processing plant					0			
- at retail					0			
Poultry meat								
fresh								
- at slaughter					0			
- at processing plant					0			
- at retail					0			
meat products								
- at slaughter					0			
- at processing plant					0			
- at retail					0			
Meat from sheep								
fresh								
- at slaughter					0			
- at processing plant					0			
- at retail					0			
Goat meat								

fresh								
- at slaughter					0			
- at processing plant					0			
- at retail					0			
Other processed food products								
prepared dishes					0			
cow milk								
raw					0			
heat-treated					0			
Dairy products					0			
Fishery products					0			

2.4.4. Pathogenic Escherichia coli in animals

A. Escherichia spp. in animal

Monitoring system

Sampling strategy

In 2004, no control programme was existing in Latvia regarding VTEC infections in animals.

Diagnostic/analytical methods used

Animals at farm

Bacteriological method: classical bacteriology

Table 11.1 Verocytotoxic Escherchia coli in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	Escherichia spp.	VTEC O 157	VTEC O 157:H7
Cattle (bovine animals)								
calves (under 1 year)				0				
meat production animals				0				
dairy cows				0				
unspecified			animal	17	1	8	0	0
Sheep				0				
Goats				0				
Pigs			animal	81	4	53	1	0
Solipeds			animal	1	0	1	0	0
Poultry			animal	121	0	19	0	0
Pet animals								
dogs				0				
cats				0				
- in total			animal	16	0	11	0	0
Fur animals			animal	29	0	14	0	0
Other animals			animal	17	0	5	0	0

Footnote

Data refer to private samples (routine diagnostics). Serovars are determined by agglutination. The source of information is the State Veterinary Diagnostic Centre.

2.5. TUBERCULOSIS

2.5.1. General evaluation of the national situation

A. Tuberculosis General evaluation

History of the disease and/or infection in the country

The use of intradermal tuberculin tests for diagnosis of bovine tuberculosis in Latvia was started in 1927. In the prewar period, intradermal tuberculin tests were not compulsory and were done on a voluntary basis. In 1937, 10,4% of the tested cows were positive.
After the Second World War private farms were eliminated. The majority of animals was moved to collective farms, where infected and non-infected animals were kept together, and tuberculosis continued to spread.
Since tuberculosis preventive measures were introduced after 1960, the number of newly infected farms decreased. The tuberculosis elimination program for domestic animals was introduced in 1968. Also testing of pigs, sheep, cats, birds and shepherd dogs were started with the aim to identify sources of infection.
The registration of human cases of tuberculosis has been started in the 1950s. With the beginning of tuberculosis therapy, number of infections among humans decreased rapidly. Since 1990, there has been an increase again in human tuberculosis again. In humans, a Mycobacterium complex consisting of M. tuberculosis, M. bovis, M. africanum and M. microti is diagnosed, and no further identification of isolates is made.

National evaluation of the recent situation, the trends and sources of infection

Actually, bovine tuberculosis in Latvia was eradicated in 1975. In the following years, bovine tuberculosis was diagnosed only on 7 farms in 4 regions:
- 1 farm in 1977
- 1 farm in 1978
- 2 farms in 1980
- 2 farms in 1981
- 1 farm in 1989

Latvia is free from bovine tuberculosis since 1989.
Regular testing of all bovine animals by intradermal tuberculin test is carried out each year. There has been no positive result since 1989 in Latvia.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

In 2004, no human case of tuberculosis due to M. bovis has been reported.

2.5.2. Tuberculosis in humans

A. Tuberculosis due to Mycobacterium bovis in humans

Notification system in place

In consistence with the Order of Cabinet of Ministers of the Republic of Latvia Nr. 7, 05.01.1999, "About the order of registration of infectious diseases", medical staff notifies human cases of infections caused by mycobacteria. These data are collected by the State Centre of Tuberculosis and Pulmonary Diseases.
Human cases of infectious diseases have to be notified within 12 hours orally or written.

Table 1.2.A Tuberculosis in man - species/serotype distribution

	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
Mycobacterium	1373	54	0	0	0	0
M. bovis	0	0,00				
M. tuberculosis(1)	1373	54,92				
reactivation of previous cases	237	9,48				

(1) : These are all first M. tuberculosis cases diagnosed in Latvia in 2004, including those not being confirmed by bacteriology. Diagnosis is made based on clinical symptoms, x-ray results or histological findings. The number of cases confirmed by isolating M. tuberculosis is 933, with an inc. of 37,32.

Footnote

It is not possible to say if the cases are autochtone or imported. Data exists only according to the state of birth of the infected humans: Out of 1373 newly infected, 1251 were born in Latvija, 96 in other countries and in 26 cases the state of birth is not known.

Table 1.2.B Tuberculosis in man - age distribution

Age Distribution	M. bovis			M. tuberculosis		
	All	M	F	All	M	F
<1 year						
1 to 4 years(1)				55	31	24
5 to 14 years				55	26	29
15 to 24 years				161	81	80
25 to 44 years				550	391	159
45 to 64 years				414	298	116
65 years and older				138	77	61
Age unknown				0	0	0
Total :	0	0	0	1373	904	469

(1) : age 0-4 years

2.5.3. Mycobacterium in animals

A. Mycobacterium bovis in Bovine Animals

Monitoring system

Sampling strategy

100% of all cattle is tested annually by using intradermal tuberculin test. Testing takes place on farm.

Frequency of the sampling

Stock bulls - 1/year
Cattle older than 8 weeks, kept together with other animal species - 1/year
Cattle older than 8 weeks, not being kept together with other animal species - 1/two years

Case definition

A single animal from wich M. bovis has been isolated.

Vaccination policy

Vaccination is prohibited.

Control program/mechanisms

The control program/strategies in place

Latvia has a national control program in place to control tuberculosis in bovines. 100% of stock bulls are tested annually. All other cattle older than 8 weeks (100%) being kept together with other species are tested annually. Cattle older than 8 weeks and not being kept together with other animal species is tested once in two years. Testing is carried out by using the intradermal tuberculin test and takes place on farm.

Measures in case of the positive findings or single cases

If the result of the intradermal test is positive, the test has to be repeated. In case the second test also has a positive result, the animal has to be slaughtered, and the diagnosis is confirmed by isolating Mycobacteria from the animal`s tissue.

B. Mycobacterium bovis in farmed deer

Additional information

In 2004, there was no program in place for control of Mycobacterium bovis in farmed deer in Latvia.

C. Mycobacterium spp. in animal - Pigs - breeding animals - at farm - Control programme - mandatory - official sampling

Monitoring system

Sampling strategy

Intradermal tuberculin test is carried out on farm. 100% of the breeding boars are tested annually. Sows, breeding boars which are used for breeding on the own farm exclusively, and young sows are tested annually as follows: 10% of the herd, but not less than 10 animals. If the herd consists of 1-10 animals, all animals are tested.

Case definition

A single animal from which M.bovis or M.avium has been isolated.

Vaccination policy

Vaccination is prohibited.

Results of the investigation

9460 pigs were tested with negative results

Table 1.1.3 Tuberculosis in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	M. bovis	M. tuberculosis
Goats			animal	134	0		
Pigs (1)			animal	9460	0		
Sheep			animal	489	0		

(1) : Control programme

Footnote

Goats and sheep are also tested by intradermal tuberculin test on request of the owner (private diagnostic). There is no official control program in place for goats and sheep.
Source of information for these data is the State Veterinary Diagnostic Centre.

1.1.1 Bovine tuberculosis - LATVIJA

MANDATORY	**CATTLE**		
Number of herds under official control:	71799	Number of animals under official control:	166647
	OTF bovine herds	**OTF bovine herds with status suspended**	**Bovine herds infected with tuberculosis**
Status of herds at year end (a):		0	0
New cases notified during the year (b):		0	0
	Units tested	**Units suspected**	**Units positive**
Routine tuberculin test (c) - data concerning herds:	71799	0	0
Routine tuberculin test (c) - data concerning animals:	166647	0	0
	Animals slaughtered	**Animals suspected**	**Animals positive**
Routine post-mortem examination (d):	0	0	
		Herds suspected	**Herds confirmed**
Follow up of suspected cases in post-mortem examination (e):		0	
Follow-up investigation of suspected cases: trace, contacts (f):		0	
	Animals tested	**Animals suspected**	**Animals positive**
Other routine investigations: exports (g):	0	0	
Other routine investigations: tests at AI stations (h):	0	0	
	All animals	**Positives**	**Contacts**
Animals destroyed (i):	0	0	0
Animals slaughtered (j):	0	0	0
VOLUNTARY	**CATTLE**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (k):	0	0	
	Herds tested	**Herds suspected**	**Herds positive**
Other investigations: farms at risk (l):	0	0	
	Samples tested	***M. bovis*isolated**	
Bacteriological examination (m):	0		

1.1.2 Tuberculosis in farmed deer

MANDATORY	**FARMED DEER**		
Number of herds under official control:		Number of animals under official control:	
	"OTF" herds	**"OTF" herds with status suspended**	**Herds infected with tuberculosis**
Status of herds at year end (a):			
New cases notified during the year (b):			
	Units tested	**Units suspected**	**Units positive**
Routine tuberculin test (c) - data concerning herds:			
Routine tuberculin test (c) - data concerning animals:			
	Animals slaughtered	**Animals suspected**	**Animals positive**
Routine post-mortem examination (d):			
		Herds suspected	**Herds confirmed**
Follow up of suspected cases in post-mortem examination (e):			
Follow-up investigation of suspected cases: trace, contacts (f):			
	Herds tested	**Herds suspected**	**Herds positive**
Other routine investigations: exports (g):			
Other routine investigations: tests at AI stations (h):			
	All animals	**Positives**	**Contacts**
Animals destroyed (i):			
Animals slaughtered (j):			

VOLUNTARY	**FARMED DEER**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (k):			
	Herds tested	**Herds suspected**	**Herds positive**
Other investigations: farms at risk (l):			
	Samples tested	***M. bovis*isolated**	
Bacteriological examination (m):	0	0	

1.1.2 Tuberculosis in farmed deer - LATVIJA

MANDATORY	**FARMED DEER**		
Number of herds under official control:	0	Number of animals under official control:	0
	"OTF" herds	**"OTF" herds with status suspended**	**Herds infected with tuberculosis**
Status of herds at year end (a):			
New cases notified during the year (b):			
	Units tested	**Units suspected**	**Units positive**
Routine tuberculin test (c) - data concerning herds:			
Routine tuberculin test (c) - data concerning animals:			
	Animals slaughtered	**Animals suspected**	**Animals positive**
Routine post-mortem examination (d):			
		Herds suspected	**Herds confirmed**
Follow up of suspected cases in post-mortem examination (e):			
Follow-up investigation of suspected cases: trace, contacts (f):			
	Herds tested	**Herds suspected**	**Herds positive**
Other routine investigations: exports (g):			
Other routine investigations: tests at AI stations (h):			
	All animals	**Positives**	**Contacts**
Animals destroyed (i):			
Animals slaughtered (j):			
VOLUNTARY	**FARMED DEER**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (k):			
	Herds tested	**Herds suspected**	**Herds positive**
Other investigations: farms at risk (l):			
	Samples tested	***M. bovis*isolated**	
Bacteriological examination (m):			

2.6. BRUCELLOSIS

2.6.1. General evaluation of the national situation

A. Brucellosis General evaluation

History of the disease and/or infection in the country

The last time that bovine brucellosis was diagnosed in Latvia was in 1963. Vaccination has never been used as an instrument in brucellosis eradication and control.
Brucella melitensis has never been detected in Latvia at all.
Because of the epidemiological situation, Latvia has no control program in place on Brucella sp. in foodstuff.

2.6.2. Brucellosis in humans

A. Brucellosis in humans

Reporting system in place for the human cases

Official reports about human cases in the country are provided monthly by all 33 regional PHA offices. The regional epidemiologists report to the regional office, which sends the reports to the central PHA. The official reports contain statistical overviews and additional informations in the context of epidemiological investigations.

Case definition

Case classification :
Possible : N.A.
Probable : A clinically compatible case with an epidemiological link, or a case with an isolated high titre
Confirmed : a clinically compatible case that is laboratory confirmed.

Diagnostic/analytical methods used

Clinical Microbiology Procedures Handbook, cultures identification of Brucella .

Notification system in place

In consistence with the Order of Cabinet of Ministers of the Republic of Latvia Nr. 7, 05.01.1999, "About the order of registration of infectious diseases", medical staff notifies human cases of brucellosis.
Human cases of infectious diseases have to be notified within 12 hours orally or written.

History of the disease and/or infection in the country

In accordance with the epidemiological surveillance data, human cases of brucellosis during the last 30 years have been registered as follows:
One case each in 1974, 1975, 1976, 1980, 1981, 1984, 1985 and 1987, what means 0,04 cases per 100000 inhabitants in each of these years.
Since 1988, no cases of human brucellosis have been registered.

Table 2.3.A Brucellosis in man - species/serotype distribution

	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
Brucella	0	0	0	0	0	0
B. abortus	0	0	0	0	0	0
B. melitensis	0	0	0	0	0	0
B. suis	0	0	0	0	0	0
occupational cases	0	0	0	0	0	0

Footnote

Human cases of brucellosis havn't been registered during the 2004. year.

Table 2.3.B Brucellosis in man - age distribution

Age Distribution	B. abortus			B. melitensis			Brucella spp.		
	All	M	F	All	M	F	All	M	F
<1 year									
1 to 4 years									
5 to 14 years									
15 to 24 years									
25 to 44 years									
45 to 64 years									
65 years and older									
Age unknown									
Total :	0	0	0	0	0	0	0	0	0

Footnote

Human cases of brucellosis during 2004. year havn't been registered.

2.6.3. Brucella in foodstuffs

Table 2.2 Brucella sp. in food

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	B. melitensis	B. abortus	B. suis
cow milk								
raw				0				
milk for manufacture				0				
heat-treated				0				
Dairy products				0				

Footnote

In 2004, there was no control program in place for Brucella sp. in foodstuff in Latvia.

2.6.4. Brucella in animals

A. Brucella abortus in Bovine Animals

Status as officially free of bovine brucellosis during the reporting year

The entire country free

Latvia has been free, but not officially free of bovine brucellosis since 1963.

Additional information

Latvia is going to apply for the officially brucellosis free status.

Monitoring system

Sampling strategy

Sampling is part of a national control programme and takes place on farm. 100% of the stock bulls are tested on brucellosis annually. All other cattle older than 12 months, except male beef cattle, is tested once in two years (100% of the animals). Serological tests are carried out by using the Rose-Bengal-Test (RBT) on blood serum samples for a first screening in cases that no milk is available or the number of animals is very low. In bigger dairy herds, bulk milk samples are tested by using ELISA.
If blood samples turn out positive in the RBT or bulk milk samples after the ELISA, individual serological testing has to be carried out on each animal.

Frequency of the sampling

Stock bulls - 1/year
Other Cattle older than 12 months, except male beef cattle - 1/two years

Type of specimen taken

Other: bulk milk and/or blood

Methods of sampling (description of sampling techniques)

Samples are taken on farm.

Case definition

An animal is considered to be infected when the individual blood sample is positive in the complement fixation test or in the agglutination. In that case, the whole herd is considered to be infected.

Diagnostic/analytical methods used

blood serum:
- Rose-Bengal-Test
- agglutination test
- complement fixation test

- ELISA
bulk milk samples:
- ELISA

Vaccination policy

Preventive vaccination of animals and usage of hyper - immune serum against brucellosis is prohibited.

Control program/mechanisms

The control program/strategies in place

Latvia has a national control programm in place.

Measures in case of the positive findings or single cases

Regulation of Cabinet of Ministers Nr. 175,30 April 2002 "Procedures for Prevention and Combating of Such Infectious Diseases as to Which Both Animals and Humans are Susceptible". The Regulations determines: the list of zoonotic diseases, which are under control and eradication, procedures of sampling for laboratory investigation, eradication measures, cooperation between institutions involved in the control, surveillance, registration and eradication of zoonotic diseases.
If determinig the brucellosis serologically in a herd of cows, in a holding affected by the infection:
- an investigation shall be commenced and up to the ascertainment of results, the supervision of the herd shall be ensured;
-serologically positive animals or animals suspected of the illness shall be isolated;
- susceptible animals may be sent to a slaughterhouse with the permission of a an inspector for an immediate slaughtering;
- samples for laboratory examinations shall be taken repeatedly;
- serologically positive animals shall be slaughtered within 30 days of the confirmations of diagnosis;
- the premises of the holding, equipment, materials, tools, vehicles and the accoutrements therefor, ramps and passages which have been in contact with hosts of infectious diseases shall be cleaned, washed and disinfected under supervision of a veterinarian with materials which destroy the brucellosis agent.

Notification system in place

Latvia is free from bovine brucellosis since 1963. All animal confirmed positive were destroyed. Annual tests of cattle have been performed till 2003.
Regulation of Cabinet of Ministers Nr. 323, 28 august 1998 "The list of animal infectious diseases" determines animal infectious diseases that eradication are organised and managedby State Veterinary Service.
Regulation of Cabinet of Ministers Nr. 175,30 April 2002 "Procedures for Prevention and Combating of Such Infectious Diseases as to Which Both Animals and Humans are Susceptible" determines how to carry out prophylaxis and eradication of such infectious diseases (zoonoses) as to which both animals and humans are susceptible.
If an owner of an undertaking (company), owner of animals , hunter or head of laboratory

determines zoonoses or he or she has suspicions regarding the illness of animals, he or she shall notify without delay an authorised veterinarian or a territorial unit of the Food and Veterinary Service therefor.
If illness of animals or humans with zoonoses has been determined or any zoonotic agent has been discovered in food products, a branch of the Social Health agency and a territorial unit of the Food and Veterinary Service not later than within two days shall mutually provide written information regarding:
- location of the determined zoonoses; and
- measures taken for limitation of zoonoses
Regulation of Cabinet of Ministers Nr. 301, 13 April 2004 "Veterinary requirements for circulation of cattle and pigs" determines veterinary requirements for circulation of cattle and pigs (excepting) wild boars) among member states of EU.
Food and Veterinary Service (FVS)Order Nr. 241, 21.09.2001. issued by FVS determines the list of zoonoses immediately notified to the Central Authority of FVS.

National evaluation of the recent situation, the trends and sources of infection

As Latvia has been free of bovine brucellosis since 1963, and the status of freedom from brucellosis is controlled by the responsible authority, brucellosis is not considered to pose a risk on animal or human health.
Latvia is going to apply for the officially brucellosis free status.

Additional information

Latvia is going to apply for the officially brucellosis free status.

B. Brucella melitensis in Sheep

Status as officially free of ovine brucellosis during the reporting year

The entire country free

Latvia has been free, but not officially free.

Additional information

Brucella melitensis has never been detected in Latvia at all.

Monitoring system

Sampling strategy

100% of the breeding rams over 6 months of age are tested once a year. Blood samples are taken.

Type of specimen taken

Blood

Methods of sampling (description of sampling techniques)

Blood samples are taken at farm.

Case definition

An animal is considered to be infected when the individual blood sample is positive in the complement fixation test. In that case, the whole herd is considered to be infected.

Diagnostic/analytical methods used

Blood serum samples are tested by complement fixation test.

Vaccination policy

Preventive vaccination of animals and usage of hyper - immune serum against brucellosis is prohibited.

Measures in case of the positive findings or single cases

Regulation of Cabinet of Ministers Nr. 175,30 April 2002 "Procedures for Prevention and Combating of Such Infectious Diseases as to Which Both Animals and Humans are Susceptible". The Regulations determines: the list of zoonotic diseases, which are under control and eradication, procedures of sampling for laboratory investigation, eradication measures, cooperation between institutions involved in the control, surveillance, registration and eradication of zoonotic diseases.
If determinig the brucellosis serologically in a herd, in a holding affected by the infection:
- examination and measures are taken to investigate the source of infection
-serologically positive animals or animals suspected of the illness shall be destroyed;
- the premises of the holding, equipment, materials, tools, vehicles and the accoutrements therefor, ramps and passages which have been into contact with hosts of infectious diseases shall be cleaned, washed and disinfected under supervision of a veterinarian with materials which destroy the brucellosis agent.

Notification system in place

Regulation of Cabinet of Ministers Nr. 323, 28 august 1998 "The list of animal infectious diseases" determines animal infectious diseases that eradication are organised and managed by State Veterinary Service.
Regulation of Cabinet of Ministers Nr. 175,30 April 2002 "Procedures for Prevention and Combating of Such Infectious Diseases as to Which Both Animals and Humans are Susceptible" determines how to carry out prophylaxis and eradication of such infectious diseases (zoonoses) as to which both animals and humans are susceptible.
If an owner of an udertaking (company), owner of animals , hunter or head of laboratory determines zoonoses or he or she has suspicions regarding the illness of animals, he or she shall notify without delay an authorised veterinarian or a territorial unit of the Food and Veterinary Service therefor.
If illness of animals or humans with zoonoses has been determined or any zoonotic agent has been discovered in food products, a branch of the Social Health agency and a territorial unit of the Food and Veterinary Service not later than within two days shall mutually provide written information regarding:
- location of the determined zoonoses; and
- measures taken for limitation of zoonoses

C. Brucella melitensis in Goat

Status as officially free of caprine brucellosis during the reporting year

The entire country free

Latvia has been free, but not officially free.

Additional information

Brucella melitensis has never been detected in Latvia at all.

Monitoring system

Sampling strategy

There is no monitoring system in place for goats. Owners can send samples to ths Diagnostic Centre, if they want to.
In 2004, 901 blood samples were tested and results were all negative.

Type of specimen taken

Blood

Methods of sampling (description of sampling techniques)

Blood samples are taken at farm.

Case definition

An animal is considered to be infected when the individual blood sample is positive in the complement fixation test. In that case, the whole herd is considered to be infected.

Diagnostic/analytical methods used

Blood serum samples are tested by complement fixation test.

Vaccination policy

Preventive vaccination of animals and usage of hyper - immune serum against brucellosis is prohibited.

Measures in case of the positive findings or single cases

Regulation of Cabinet of Ministers Nr. 175,30 April 2002 "Procedures for Prevention and Combating of Such Infectious Diseases as to Which Both Animals and Humans are Susceptible". The Regulations determines: the list of zoonotic diseases, which are under control and eradication, procedures of sampling for laboratory investigation, eradication measures, cooperation between institutions involved in the control, surveillance, registration and eradication of zoonotic diseases.
If determinig the brucellosis serologically in a herd, in a holding affected by the infection:
- examination and measures are taken to investigate the source of infection
-serologically positive animals or animals suspected of the ilness shall be destroyed;

- the premises of the holding, equipment, materials, tools, vehicles and the accoutrements therefor, ramps and passages which have been into contact with hosts of infectious diseases shall be cleaned, washed and disinfected under supervision of a veterinarian with materials which destroy the brucellosis agent.

Notification system in place

Regulation of Cabinet of Ministers Nr. 323, 28 august 1998 "The list of animal infectious diseases" determines animal infectious diseases that eradication are organised and managed by State Veterinary Service.
Regulation of Cabinet of Ministers Nr. 175,30 April 2002 "Procedures for Prevention and Combating of Such Infectious Diseases as to Which Both Animals and Humans are Susceptible" determines how to carry out prophylaxis and eradication of such infectious diseases (zoonoses) as to which both animals and humans are susceptible.
If an owner of an udertaking (company), owner of animals , hunter or head of laboratory determines zoonoses or he or she has suspicions regarding the illness of animals, he or she shall notify without delay an authorised veterinarian or a territorial unit of the Food and Veterinary Service therefor.
If illness of animals or humans with zoonoses has been determined or any zoonotic agent has been discovered in food products, a branch of the Social Health agency and a territorial unit of the Food and Veterinary Service not later than within two days shall mutually provide written information regarding:
- location of the determined zoonoses; and
- measures taken for limitation of zoonoses
All abortions have to be reported.

Table 2.1.3 Brucellosis in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	B. melitensis	B. abortus	B. suis
Pigs (1)			animal	9791	0			
Pet animals			animal	3	0			
Zoo animals			animal	3	0			
Solipeds (2)			animal	6	0			
Other animals (3)			animal	12	0			

(1) : serology - 9790; bacteriology - 1
(2) : serology - 5; bacteriology - 1
(3) : guinea pig

Footnote

Source of information is the State Veterinary Diagnostic Centre.

2.1.1 Bovine brucellosis

MANDATORY	CATTLE		
Number of herds under official control:	18643	Number of animals under official control:(2)	54019
	OBF bovine herds	**OBF bovine herds with status suspended**	**Bovine herds infected with brucellosis**
Status of herds at year end (a):(1)	0	0	0
New cases notified during the year (b):	0	0	0
	Animals tested	**Animals suspected**	**Animals positive**
Notification of clinical cases, including abortions (c):	0	0	0
	Units tested	**Units suspected**	**Units positive**
Routine testing (d1) - data concerning herds:	18643	0	0
Routine testing (d2) - number of animals tested:	54019	0	0
Routine testing (d3) - number of animals tested individually:	0	0	0
		Herds suspected	**Herds confirmed**
Follow-up investigation of suspected cases: trace, contacts (e):		0	0
	Animals tested	**Animals suspected**	**Animals positive**
Other routine investigations: exports (f):			
Other routine investigations: tests at AI stations (g):			
	All animals	**Positives**	**Contacts**
Animals destroyed (h):	0	0	0
Animals slaughtered (i):	0	0	0
VOLUNTARY	**CATTLE**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (k):			0
	Herds tested	**Herds suspected**	**Herds positive**
Other investigations: farms at risk (l):	0	0	0
	Samples tested	**Brucella isolated**	
Bacteriological examination (m):	3	0	

(1) : Herds are free of brucellosis, but do not have OBF status at this moment.
(2) : Bovines older than 12 months

2.1.1 Bovine brucellosis - LATVIJA

MANDATORY	**CATTLE**		
Number of herds under official control:	18643	Number of animals under official control:	54019
	OBF bovine herds	**OBF bovine herds with status suspended**	**Bovine herds infected with brucellosis**
Status of herds at year end (a):		0	0
New cases notified during the year (b):	0	0	0
	Animals tested	**Animals suspected**	**Animals positive**
Notification of clinical cases, including abortions (c):	0	0	0
	Units tested	**Units suspected**	**Units positive**
Routine testing (d1) - data concerning herds:	18643	0	0
Routine testing (d2) - number of animals tested:	54019	0	0
Routine testing (d3) - number of animals tested individually:	54019	0	0
		Herds suspected	**Herds confirmed**
Follow-up investigation of suspected cases: trace, contacts (e):		0	0
	Animals tested	**Animals suspected**	**Animals positive**
Other routine investigations: exports (f):			
Other routine investigations: tests at AI stations (g):			
	All animals	**Positives**	**Contacts**
Animals destroyed (h):	0	0	0
Animals slaughtered (i):	0	0	0
VOLUNTARY	**CATTLE**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (k):			
	Herds tested	**Herds suspected**	**Herds positive**
Other investigations: farms at risk (l):			
	Samples tested	**Brucella isolated**	
Bacteriological examination (m):			

2.1.2 Ovine and caprine brucellosis

MANDATORY	SHEEP AND GOATS		
Number of holdings under official control:(3)		Number of animals under official control:(2)	2971
	OBF ovine and caprine holdings	**OBF ovine and caprine holdings with status suspended**	**OBF ovine and caprine holdings infected with brucellosis**
Status of herds at year end (a):		0	0
New cases notified during the year (b):	0	0	0
	Animals tested	**Animals suspected**	**Animals positive**
Notification of clinical cases, including abortions (c):			
	Units tested	**Units suspected**	**Units positive**
Routine testing (d) - data concerning holdings:			
Routine testing (d) - data concerning animals:(1)	2971	0	0
		Holdings suspected	**Holdings confirmed**
Follow-up investigation of suspected cases: trace, contacts (e):		0	0
	Animals tested	**Animals suspected**	**Animals positive**
Other routine investigations: exports (f):	0	0	0
	All animals	**Positives**	**Contacts**
Animals destroyed (g):	0	0	0
Animals slaughtered (h):	0	0	0
VOLUNTARY	**SHEEP AND GOATS**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (i):	0	0	0
	Holdings tested	**Holdings suspected**	**Holdings positive**
Other investigations: farms at risk (j):	0	0	0
	Samples tested	**Brucella isolated**	
Bacteriological examination (k):	0	0	

(1) : sheep - 2070, goats - 901
(2) : Breeding he-goats only.
(3) : Official control is only performed in all breeding he-goats older than 6 months.

2.7. YERSINIOSIS

2.7.1. General evaluation of the national situation

A. Yersinia entercolitica general evaluation

History of the disease and/or infection in the country

There is no program in place to control or monitor Yersinia enterocolitica in animals or food.

2.7.2. Yersiniosis in humans

A. Yersinosis in humans

Reporting system in place for the human cases

Official reports about human cases in the country are provided monthly by all 33 regional PHA offices. The regional epidemiologists report to the regional office, which sends the reports to the central PHA. The official reports contain statistical overviews and additional informations in the context of epidemiological investigations.

Case definition

Possible : N.A.
Probable : A clinically compatible case with an epidemiological link
Confirmed : A case that is laboratory confirmed.

Diagnostic/analytical methods used

Clinical Microbiology Procedures Handbook.
"Test methods used in the identification of commonly isolated aerobic gram-negative bacteria."
"Commercial systems for identification kits API 20E, ID 32E".

Notification system in place

In consistence with the Order of Cabinet of Ministers of the Republic of Latvia Nr. 7, 05.01.1999, "About the order of registration of infectious diseases", medical staff notifies human cases of yersiniosis.
Human cases of infectious diseases have to be notified within 12 hours orally or written.

History of the disease and/or infection in the country

According to the epidemiological surveillance data, starting from 1988, the incidence of yersiniosis has been decreasing. Since 1996 the incidence level was regostered in 1997 - 4,76 cases per 100 000 population, whereas the lowest one in 2003 - 1,2 cases per 100 000 population.
Y. enterocolitica is the prevailing infection among laboratory confirmed cases of yersiniosis.
The incidence has been higher among children - in 2002, the highest incidence rate was reported in the age group under 1 year, whereas in 2003, in the age group 6 years.

Table 8.3.A Yersiniosis in man - species/serotype distribution

Yersinia	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
	32	0	32	0	0	0
Y. enterocolitica	22	0,95	22	0,95		
Y. enterocolitica O:3	10	0,43	10	0,43		
Y. enterocolitica O:9						

Table 8.3.B Yersiniosis in man - age distribution

Age Distribution	Y. enterocolitica			Yersinia spp.		
	All	M	F	All	M	F
<1 year	2	1	1	2	1	1
1 to 4 years	7	5	2	5	4	1
5 to 14 years	7	4	3	7	4	3
15 to 24 years	3	1	2	2	1	1
25 to 44 years	4	2	2	4	2	2
45 to 64 years	2		2	2		2
65 years and older						
Age unknown						
Total :	25	13	12	22	12	10

Table 8.3.C Yersiniosis in man - seasonal distribution

Month	Y. enterocolitica	Yersinia spp.
	Cases	Cases
January		
February	2	3
March	1	2
April	1	2
May	3	3
June	1	1
July	4	4
August	2	2
September	1	1
October	1	1
November	1	1
December	5	5
not known		
Total :	22	25

2.7.3. Yersinia in foodstuffs

Table 8.2 Yersinia enterocolitica in food

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	Y. enterocolitica	Y. enterocolitica O:3	Y. enterocolitica O:9
Bovine meat									
fresh									
- at slaughter					0				
- at processing plant					0				
- at retail					0				
meat products									
- at slaughter					0				
- at processing plant					0				
- at retail					0				
Pig meat									
fresh									
- at slaughter					0				
- at processing plant					0				
- at retail					0				
meat products									
- at slaughter					0				
- at processing plant					0				
- at retail					0				
Poultry meat									
fresh									
- at slaughter					0				
- at processing plant					0				
- at retail					0				
meat products									
- at slaughter					0				
- at processing plant					0				
- at retail					0				
Other meat									
fresh									
- at slaughter					0				
- at processing plant					0				
- at retail					0				
meat products									

- at slaughter					0				
- at processing plant					0				
- at retail					0				
Other processed food products									
prepared dishes					0				
cow milk									
raw					0				
Dairy products					0				
Fishery products					0				

2.7.4. Yersinia in animals

A. Yersinia spp. in animal

Monitoring system

Sampling strategy

In Latvia, control programmes for Yersinia spp. in food and animals do not exist.
Some faeces samples have been analised in the context of clinical cases and differential diagnosis.

Diagnostic/analytical methods used

classical bacteriology

Table 8.1 Yersinia enterocolitica in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Y. enterocolitica	Y. enterocolitica O:3	Y. enterocolitica O:9
Cattle (bovine animals)				0			
Sheep				0			
Goats				0			
Pigs				0			
Solipeds				0			
Poultry				0			
Pet animals							
dogs				0			
cats				0			
Other animals (1)				13	0	0	0

(1) : - clinical cases
- epidemiological unit = animal faeces sample

Footnote

Tested animals are mainly dogs and cats. Testing has been performed in the context of epidemiological investigations and to exclude differential diagnoses in clinical cases. Source of information is the State Veterinary Diagnostic Centre.

2.8. TRICHINELLOSIS

2.8.1. General evaluation of the national situation

A. Trichinellosis General evaluation

History of the disease and/or infection in the country

Trichinellosis is a notifiable disease in animals and humans in Latvia. From 1998 until 2004, 247 human cases have been reported in all age groups starting from 1 year. In all outbreaks from 2001 to 2004, the source of infection was pork.
In animals, Trichinella is found most often in wild boar and foxes. In pigs, 5 animals tested positive for Trichinella betweeen 1999 and 2004. These animals were slaughtered on farm.

National evaluation of the recent situation, the trends and sources of infection

In former times, the testing of meat from home slaughterings and from wild animals was free for private persons. Nowadays, since people have to pay for it on their own, the number of these tests has decreased.
Main problems are unproper processing of meat and selling of not examined pork products from house slauhgterings (e.g. hunters producing tinned food from wild boar meat for their own consumption; illegally produced and sold pork and products thereof).

2.8.2. Trichinellosis in humans

A. Trichinellosis in humans

Reporting system in place for the human cases

Official reports about human cases in the country are provided monthly by all 33 regional PHA offices. The regional epidemiologists report to the regional office, which sends the reports to the central PHA. The official reports contain statistical overviews and additional informations in the context of epidemiological investigations.

Case definition

Possible: N.A.
Probable : A clinically compatible case with an apidemiological link
Confirmed : A clinically compatible case that is laboratory confirmed

Diagnostic/analytical methods used

Enzyme immunoassay for detection of IgG antibodies against Trichinella spiralis.

Notification system in place

In consistence with the Order of Cabinet of Ministers of the Republic of Latvia Nr. 7, 05.01.1999, "About the order of registration of infectious diseases", medical staff notifies human cases of trichinellosis.
Human cases of infectious diseases have to be notified within 12 hours orally or written.

History of the disease and/or infection in the country

The epidemiological surveillance data show that during the last 6 years the highest incidence rate has been registred in 2000 - 91 cases (3,8 cases per 100 000 population). The highest incidence is caused by outbreaks. Between 2001 and 2003, the incidence level remaind stable - 20 to 22 cases (0,8 - 0,9 cases per 100 000 population).

National evaluation of the recent situation, the trends and sources of infection

The main source of infection is pork: wild boar meat and pork from home-raised and on-farm slaughtered pigs.

Table 4.2.A Trichinellosis in man - species/serotype distribution

Trichinella	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
	24	1	24	1	0	0
Trichinella spp.	24	1,03	24	1,03		

Table 4.2.B Trichinellosis in man - age distribution

Age Distribution	Trichinella spp.		
	All	M	F
<1 year			
1 to 4 years	1		1
5 to 14 years	3	2	1
15 to 24 years	3	1	2
25 to 44 years	11	6	5
45 to 64 years	4	2	2
65 years and older	2		2
Age unknown			
Total :	24	11	13

2.8.3. Trichinella in animals

A. Trichinella in pigs

Monitoring system

Sampling strategy

All pig carcasses are tested for Trichinella at slaughter according to Council Directive 64/433/EEC and Council Directive 77/96/EEC .
When animals are slaughtered at home for personal consumption, the owner is responsible for ensuring the carcass is tested before it is consumed.

Frequency of the sampling

Every slaughtered animal is sampled

Type of specimen taken

Diaphragm muscle

Case definition

An animal with a positive test result in the official examination.

Diagnostic/analytical methods used

Commpresssion method and Artifical digestion methog of collective samples

Measures in case of the positive findings or single cases

Measures taken are according to Council Directive 64/433/EEC and Regulation of Cabinet of Ministers Nr. 175,30 April 2002 "Procedures for Prevention and Combating of Such Infectious Diseases as to Which Both Animals and Humans are Susceptible". If there are any positive results, the affected slaughterhouse is investigated and placed under restrictions while legally prescribed remedial measures are instituted (not allowed to sell animals, carcasses must be destroyed, epidemiological investigations will be initiated).

B. Trichinella in horses

Monitoring system

Sampling strategy

All horses carcasses are tested for Trichinella at slaughter according to Council Directive 64/433/EEC and Council Directive 77/96/EEC .
When animals are slaughtered at home for personal consumption, the owner is responsible for ensuring the carcass is tested before it is consumed.

Frequency of the sampling

Every slaughtered animal is sampled

Type of specimen taken

Other: Tongue and/or Musculus masseter

Case definition

An animal with a positive test results in the official examination.

Diagnostic/analytical methods used

Commpresssion method and Artifical digestion method of collective samples

Measures in case of the positive findings or single cases

Measures taken are according to Council Directive 64/433/EEC and Regulation of Cabinet of Ministers Nr. 175,30 April 2002 "Procedures for Prevention and Combating of Such Infectious Diseases as to Which Both Animals and Humans are Susceptible". If there are any positive results, the affected slaughterhouse is investigated and placed under restrictions while legally prescribed remedial measures are instituted (not allowed to sell animals, carcasses must be destroyed, epidemiological investigations will be initiated).

Table 4.1 Trichinella in animals

	Source of information	Remarks	Epidemiological unit	Animals tested	Animals positive
Pigs			animal	419105	0
Solipeds			animal	239	0
Wildlife					
wild boars			animal	1022	12
other			animal	19	0

Footnote

The source of information for data on pigs and solipeds is the Food and Veterinary Service.
Other data were provided by the State Veterinary Diagnostic Centre.

2.9. ECHINOCOCCOSIS

2.9.1. General evaluation of the national situation

A. Echinococcus spp general evaluation

History of the disease and/or infection in the country

The prevalence of Echinococcosis spp. in Latvia is very low. The parasite is almost eliminated due to systematic anti-helmintic treatment of animals (final hosts) and reduced use of raw slaughter offal to dogs.

Additional information

Surveillance in intermediate hosts is achieved trough the official meat inspection, where inspection for hydatid cysts at the abattoir is part of the meat inspection procedure according to Council Directive 64/433/EEC.
There are no official monitoring programmes for echinococcosis among the final hosts (dogs and/or cats). Treatment with an anti-helmintic drug is advocated on a general basis. Dogs and cats must be treated with an anti-helmintic drug once or more per year.

2.9.2. Echinococcosis in humans

A. Echinococcus spp in humans

Reporting system in place for the human cases

Official reports about human cases in the country are provided monthly by all 33 regional PHA offices. The regional epidemiologists report to the regional office, which sends the reports to the central PHA. The official reports contain statistical overviews and additional informations in the context of epidemiological investigations.

Case definition

Possible : N.A,
Probable : N.A.
Confirmed : A clinically compatible case that is laboratory confirmed.

Diagnostic/analytical methods used

Methods of serology

Notification system in place

In consistence with the Order of Cabinet of Ministers of the Republic of Latvia Nr. 7, 05.01.1999, "About the order of registration of infectious diseases", medical staff notifies human cases of echinococcosis.
Human cases of infectious diseases have to be notified within 12 hours orally or written.

History of the disease and/or infection in the country

The epidemiological surveillance data suggest that since 1999, the highest incidence of echinococcosis has been reported in 2002 - 6 cases (0,26 cases per 100 000 population). During the last 5 years the cases of echinococcosis have mainly been registered among adults and only one case in a child (age group 7 - 14 years) in 2000.

Table 9.2.A Echinococcosis in man - species/serotype distribution

	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
Echinococcus	2	0	1	0	1	0
E. granulosus	2	0,09	1	0,04	1	0,04
E. multilocularis						
Echinococcus spp.						

Table 9.2.B Echinococcosis in man - age distribution

Age Distribution	E. granulosus			E. multilocularis			Echinococcus spp.		
	All	M	F	All	M	F	All	M	F
<1 year									
1 to 4 years									
5 to 14 years									
15 to 24 years									
25 to 44 years									
45 to 64 years	1		1						
65 years and older	1		1						
Age unknown									
Total :	2	0	2	0	0	0	0	0	0

2.9.3. Echinococcus in animals

Table 9.1 Echinococcus sp. in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Echinococcus spp.	E. multilocularis	E. granulosus
Cattle (bovine animals)				117120	0	0	0
Sheep				3696	0	0	0
Pigs				419105	268		
Solipeds				239	0	0	0
Pet animals							
dogs				0			
cats				0			
Wildlife							
foxes				0			
other				0			

Footnote

Epidemiological unit = animal
Source of information is the Food and Veterinary Service.

2.10. TOXOPLASMOSIS

2.10.1. General evaluation of the national situation

A. Toxoplasmosis general evaluation

Additional information

Latvia has no monitoring program in place to control toxoplasmosis in animals.

2.10.2. Toxoplasmosis in humans

A. Toxoplasmosis in humans

Reporting system in place for the human cases

Official reports about human cases in the country are provided monthly by all 33 regional PHA offices. The regional epidemiologists report to the regional office, which sends the reports to the central PHA. The official reports contain statistical overviews and additional informations in the context of epidemiological investigations.

Case definition

Possible : N.A.
Probable : N.A.
Confirmed : A clinically compatible case that is laboratory confirmed.

Diagnostic/analytical methods used

Methods of serology.

Notification system in place

In consistence with the Order of Cabinet of Ministers of the Republic of Latvia Nr. 7, 05.01.1999, "About the order of registration of infectious diseases", medical staff notifies human cases of toxoplasmosis.
Human cases of infectious diseases have to be notified within 12 hours orally or written.

History of the disease and/or infection in the country

The epidemiological surveillance data show that during the last 8 years, the incidence rate had gradually increased from 0,12 cases per 100 000 population in 1996 to 0,78 cases per 100 000 populationin 2000, when the highest incidence rate has been registered. From 2001, the incidence is decreasing, reaching 0,13 cases per 100 000 population in 2003.
During the last 5 years, the cases have mainly been registered among adults aged 18 - 49 years. 1 case in age group 15 - 17 years was registered in 2002.

Table 10.2.A Toxoplasmosis in man - species/serotype distribution

Toxoplasma	Cases	Cases Inc
	7	0
Toxoplasma spp.	7	0,3
congenital cases	1	0,04

Table 10.2.B Toxoplasmosis in man - age distribution

Age Distribution	Toxoplasma spp.		
	All	M	F
<1 year	1	1	
1 to 4 years			
5 to 14 years			
15 to 24 years			
25 to 44 years	6		6
45 to 64 years			
65 years and older			
Age unknown			
Total :	7	1	6

2.10.3. Toxoplasma in animals

A. T. gondii in animal

Monitoring system

Sampling strategy

In 2004, Latvia had no monitoring programme in place to control Toxoplasma spp. in animals. Samples are sent by private veterinarians.

Diagnostic/analytical methods used

serological tests: latex agglutination and complement fixation test

Table 10.1 Toxoplasma gondii in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive
Cattle (bovine animals)				0	
Sheep				0	
Goats				0	
Pigs				0	
Solipeds				0	
Pet animals					
dogs (1)			animal	69	34
cats (2)			animal	26	2

(1) : serological tests: latex agglutination and complement fixation test
(2) : serological tests: latex agglutination and complement fixation test

Footnote

Samples were sent by private veterinarians. Source of information is the State Veterinary Diagnostic Centre.

2.11. RABIES

2.11.1. General evaluation of the national situation

A. Rabies General evaluation

History of the disease and/or infection in the country

The main reservoir for rabies in Latvia are red foxes and racoon dogs. During the last years, the density of red foxes and racoon dogs in Latvia has been increasing from 1,16 per square kilometre in 1998 up to 1,7 per square kilometre in 2003. The rabies cases in red foxes varied between 71 and 144 in the years from 1993 until 1999, in racoon dogs there were between 20 and 39 cases of rabies. Since the year 200, these numbers increased and had a peak in 2003 (471 cases in red foxes, 285 cases in racoon dogs). In 2004, 170 rabies cases in red foxes and 130 rabies cases in racoon dogs were diagnosed.
Other animals affected in 2004 were dogs, cats and cattle.

National evaluation of the recent situation, the trends and sources of infection

Infection generally occurs through a bite from infected animals. Wild animals (foxes and racoon dogs) are the most common source of infection in Latvia.

Additional information

In Latvia, the oral vaccination of foxes and raccon dogs against rabies has been started in 1998. Vaccination campaigns have been carried out twice per year: during spring and autumn. From 1998 - 2004, vaccine baits were distributed by hands (manual distribution), but in 2005 aerial distribution was used for the first time .

2.11.2. Rabies in humans

A. Rabies in humans

Reporting system in place for the human cases

Official reports about human cases in the country are provided monthly by all 33 regional PHA offices. The regional epidemiologists report to the regional office, which sends the reports to the central PHA. The official reports contain statistical overviews and additional informations in the context of epidemiological investigations.

Case definition

Possible : A clinical compatible case without laboratory confirmation
Probable : N.A.
Confirmed : A clinically compatible case that is laboratory confirmed.

Diagnostic/analytical methods used

Name - Platelia Rabies Kit.
Firm - Bio Rad.
Enzyme immunoassay detection (ELISA).

Notification system in place

In consistence with the Order of Cabinet of Ministers of the Republic of Latvia Nr. 7, 05.01.1999, "About the order of registration of infectious diseases", medical staff notifies human cases of rabies.
Human cases of infectious diseases have to be notified within 12 hours orally or written.

History of the disease and/or infection in the country

In accordance with the epidemiological surveillance data, rabies cases in humans during the last 30 years (1974 until 2004) have been registered as follows:
- 1982: 1 case in Kraslava district, source of infection: dog;
- 1986: 1 case in Kraslava district, source of infection: fox;
- 1993: 1 case in Saldus district, source of infection: fox;
- 2003: 1 case in Daugavpils district, source of infection: dog.

2.11.3. Lyssavirus (rabies) in animals

A. Rabies in dogs

Additional information

There are no specific control mechanisms for dogs - see "rabies in animals".

B. Rabies virus in animal

Monitoring system

Sampling strategy

In 2004, there was no active surveillance program in place regarding rabies, but there was passive official control. In case of suspicion, the owner has to report immediately to a private veterinarian or the FVS.

Methods of sampling (description of sampling techniques)

Detection of viral antigens by an immunofluorescence test in neurological tissue (brain) in connection to partial post-mortem examination.

Case definition

A case that is laboratory confirmed.

Diagnostic/analytical methods used

Flourescent antibody test and mouse inoculation test.

Vaccination policy

All cats and dogs must be vaccinated against rabies once per year.

Measures in case of the positive findings or single cases

Suspected animals will be put under observation for 15 days. If the animal is vaccinated and no symptoms occur, the animal is re-vaccinated. In case the animal is not vaccinated, it has to be euthanised or slaughtered. Brain tissue is submitted to the Diagnostic Centre for further investigations.
If the animal has not been vaccinated and the owner refueses to euthanise it, vaccination is performed and serum titer is determined.

Notification system in place

Regulation of Cabinet of Ministers Nr. 323, 28 august 1998 "The list of animal infectious diseases" determines animal infectious diseases that eradication are organised and managedby State Veterinary Service.
Regulation of Cabinet of Ministers Nr. 175,30 April 2002 "Procedures for Prevention and Combating of Such Infectious Diseases as to Which Both Animals and Humans are Susceptible"

determines how to carry out prophylaxis and eradication of such infectious diseases (zoonoses) as to which both animals and humans are susceptible.

If an owner of an undertaking (company), owner of animals , hunter or head of laboratory determines zoonoses or he or she has suspicions regarding the illness of animals, he or she shall notify without delay an authorised veterinarian or a territorial unit of the Food and Veterinary Service therefor.

If illness of animals or humans with zoonoses has been determined, a branch of the Public Health Agency and a territorial unit of the Food and Veterinary Service not later than within two days shall mutually provide written information regarding:

- location of the determined zoonoses; and
- measures taken for limitation of zoonoses

Food and Veterinary Service (FVS)Order Nr. 241, 21.09.2001. issued by FVS determines the list of zoonoses immediately notified to the Central Authority of FVS.

Table 5.1 Rabies in animals

	Source of information	Remarks	Animals tested	Animals positive
Cattle (bovine animals)			52	25
Sheep			3	0
Goats			2	0
Pigs			0	0
Solipeds			2	0
Wildlife				
bats			0	0
foxes			409	181
other			350	168
all			759	349
Pet animals				
dogs			174	33
cats			198	35
other			1	0
Other animals (1)			15	1

(1) : rat, mouse

Footnote

Source of information is the State Veterinary Diagnostic Centre.

The following amendments were made :

Date of modification	Species	Column	Old value	New value
2005-10-05	Wildlife - other	Animals tested	347	350

3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE

3.1. E. COLI INDICATORS

3.1.1. General evaluation of the national situation

A. E. coli general evaluation

History of the disease and/or infection in the country

There are no special programmes in place to control indicator bacteria in food, feed or animals. E. coli isolates are from clinical cases/routine diagnostics in animals and from random food samples.

3.1.2. Antimicrobial resistance in *Escherichia coli* isolates

Table 13.1 Antimicrobial susceptibility testing of E.coli in animals

	E.coli													
	Cattle (bovine animals)		**Pigs**		**Rabbits**		**Gallus gallus**		**Turkeys**		**Pet animals**		**Other poultry**	
Isolates out of a monitoring program	no		no		no		no				no		no	
Number of isolates available in the laboratory	20		39		3		13		0		12		3	
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline	8	38%	25	72%	2	0%	2	50%			6	33%	1	100%
Amphenicols														
Chloramphenicol	8	25%	3	0%	0		4	25%			11	18%	3	33%
Cephalosporin														
Cefotaxim	7	0%	11	18%	2	50%	9	0%			4	0%	1	100%
Cefuroxim	10	0%	15	7%	1	0%	7	0%			4	0%	0	
Fluoroquinolones														
Ciprofloxacin	16	0%	37	0%	2	0%	12	33%			10	10%	3	0%
Quinolones														
Nalidixic acid	8	0%	24	13%	2	0%	6	33%			2	0%	1	100%
Trimethoprim	4	50%	4	75%	0		0				8	13%	3	67%
Aminoglycosides														
Streptomycin	14	36%	28	71%	3	33%	11	55%			4	0%	0	
Gentamicin	18	6%	30	10%	3	0%	13	15%			8	0%	2	0%
Neomycin	18	22%	29	41%	3	0%	11	18%			7	14%	0	
Kanamycin	15	33%	30	53%	3	0%	12	8%			9	22%	3	0%
Trimethoprim + sulfonamides	5	0%	3	67%	0		1	0%			8	25%	1	0%
Penicillins														
Ampicillin	16	19%	35	74%	2	50%	9	89%			7	29%	2	50%
Number of multiresistant isolates														
fully sensitives	13	65%	3	8%	1	33%	4	31%			8	67%	1	33%
resistant to 1 antimicrobial	2	10%	7	18%	1	33%	2	15%			1	8%	0	
resistant to 2 antimicrobials	0		6	15%	1	33%	1	8%			0		1	33%
resistant to 3 antimicrobials	3	15%	10	26%	0		4	31%			0		0	
resistant to 4 antimicrobials	0		8	21%	0		0				3	25%	1	33%
resistant to >4 antimicrobials	2	10%	5	13%	0		2	15%					0	

Table 13.6 Antimicrobial susceptibility testing of E.coli in food

	E.coli									
	Broiler meat		**Other poultry meat**		**Pig meat**		**Bovine meat**		**Dairy products**	
Isolates out of a monitoring program	no				no		no		no	
Number of isolates available in the laboratory	8				13		3		6	
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline	4	50%			9	11%	2	0%		
Amphenicols										
Chloramphenicol	5	40%			13	15%	2	0%	3	0%
Cephalosporin										
Cefotaxim	7	14%			13	0%	3	0%	2	0%
Cefuroxim	5	20%			7	0%	3	0%	4	0%
Fluoroquinolones										
Ciprofloxacin	7	14%			11	9%	3	0%	6	0%
Quinolones										
Nalidixic acid	4	50%			3	0%	1	0%	2	0%
Trimethoprim	4	75%			3	0%			5	0%
Aminoglycosides										
Streptomycin	4	75%			9	33%	2	0%	5	0%
Gentamicin	5	0%			2	0%	2	0%	3	0%
Neomycin	5	0%			12	0%	3	0%	5	0%
Kanamycin	7	0%			11	9%	2	0%	6	0%
Trimethoprim + sulfonamides	4	75%			3	0%			3	0%
Penicillins										
Ampicillin	5	100%			11	27%	2	0%	6	17%
Number of multiresistant isolates										
fully sensitives	1	13%			8	62%	3	100%	5	83%
resistant to 1 antimicrobial	0				3	23%	0		1	17%
resistant to 2 antimicrobials	2	25%			0		0		0	
resistant to 3 antimicrobials	1	13%			1	8%	0		0	
resistant to 4 antimicrobials	4	50%			0		0		0	
resistant to >4 antimicrobials	0				1	8%	0		0	

Table 13.8 Antimicrobial susceptibility testing of E.coli. in humans - qualitative data

	E.coli	
	humans	
Isolates out of a monitoring program		
Number of isolates available in the laboratory		
Antimicrobials:	**N**	**%R**

Footnote

No data available.

Table 13.7 Breakpoints used for antibiotic resistance testing of E.coli in Animals

Test Method Used

Disc diffusion
Agar dilution
Broth dilution
E-test

Standards used for testing

NCCLS
CASFM

Subject to quality control

Escherichia coli	Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		disk content	breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Tetracycline	NCCLS						30	14	18	19
Amphenicols										
Chloramphenicol	NCCLS						30	12	17	18
Florfenicol										
Fluoroquinolones										
Ciprofloxacin	NCCLS						5	15	20	21
Enrofloxacin										
Quinolones										
Nalidixic acid	NCCLS						30	13	18	19
Trimethoprim	NCCLS						5	10	15	16
Sulfonamides										
Sulfonamide										
Aminoglycosides										
Streptomycin	NCCLS						10	11	14	15
Gentamicin	NCCLS						10	12	14	15
Neomycin	NCCLS						30	12	16	17
Kanamycin	NCCLS						30	13	17	18
Trimethoprim + sulfonamides	NCCLS						25	10	15	16
Cephalosporin										
Cefotaxim	NCCLS						30	14	22	23
Cefuroxim	NCCLS						30	14	17	18
3rd generation cephalosporins										
Penicillins										
Ampicillin	NCCLS						10	13	16	17

Table 13.7 Breakpoints used for antibiotic resistance testing of E.coli in Food

Test Method Used

- Disc diffusion
- Agar dilution
- Broth dilution
- E-test

Standards used for testing

- NCCLS
- CASFM

Subject to quality control

Escherichia coli	Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		disk content	breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Tetracycline	NCCLS						30	14	18	19
Amphenicols										
Chloramphenicol	NCCLS						30	12	17	18
Florfenicol										
Fluoroquinolones										
Ciprofloxacin	NCCLS						5	15	20	21
Enrofloxacin										
Quinolones										
Nalidixic acid	NCCLS						30	13	18	19
Trimethoprim	NCCLS						5	10	15	16
Sulfonamides										
Sulfonamide										
Aminoglycosides										
Streptomycin	NCCLS						10	11	14	15
Gentamicin	NCCLS						10	12	14	15
Neomycin	NCCLS						30	12	16	17
Kanamycin	NCCLS						30	13	17	18
Trimethoprim + sulfonamides(1)	NCCLS						25	10	15	16
Cephalosporin										
Cefotaxim	NCCLS						30	14	22	23
Cefuroxim	NCCLS						30	14	17	18
3rd generation cephalosporins										
Penicillins										
Ampicillin	NCCLS						10	13	16	17

(1) : Trimethoprim 1.25 + sulfamethoxazole 23.75

Table 13.7 Breakpoints used for antibiotic resistance testing of E.coli in Feedingstuff

Test Method Used

- Disc diffusion
- Agar dilution
- Broth dilution
- E-test

Standards used for testing

- NCCLS
- CASFM

Subject to quality control

Escherichia coli	Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		disk content	breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Tetracycline	NCCLS						30	14	18	19
Amphenicols										
Chloramphenicol	NCCLS						30	12	17	18
Florfenicol										
Fluoroquinolones										
Ciprofloxacin	NCCLS						5	15	20	21
Enrofloxacin										
Quinolones										
Nalidixic acid	NCCLS						30	13	18	19
Trimethoprim	NCCLS						5	10	15	16
Sulfonamides										
Sulfonamide										
Aminoglycosides										
Streptomycin	NCCLS						10	11	14	15
Gentamicin	NCCLS						10	12	14	15
Neomycin	NCCLS						30	12	16	17
Kanamycin	NCCLS						30	13	17	18
Trimethoprim + sulfonamides(1)	NCCLS						25	10	15	16
Cephalosporin										
Cefotaxim	NCCLS						30	14	17	18
Cefuroxim	NCCLS						30	14	22	23
3rd generation cephalosporins										
Penicillins										
Ampicillin	NCCLS						10	13	16	17

(1) : trimethoprim 1.25mkg + sulfamethoxazole 23.75mkg

4. FOODBORNE OUTBREAKS

Foodborne outbreaks are incidences of two or more human cases of the same disease or infection where the cases are linked or are probably linked to the same food source. Situation, in which the observed human cases exceed the expected number of cases and where a same food source is suspected, is also indicative of a foodborne outbreak.

A. Foodborne outbreaks

System in place for identification, epidemological investigations and reporting of foodborne outbreaks

Official reports about human cases in the country are provided monthly by all 33 regional PHA offices. The regional epidemiologists report to the regional office, which sends the reports to the central PHA. The official reports contain statistical overviews and additional informations in the context of epidemiological investigations.

Table 12. Foodborne outbreaks in humans

Causative agent	General outbreak	Family outbreak	Total Number in persons			Source			Type of evidence	Location of exposure	Contributing factors
			ill	died	in hospital		Suspected	Confirmed			
1	2	3	4	5	6	7			8	9	10
Diphyllobothrium	0	1	2	0	n/d	Fish	1	0	Descriptive evidence (possible vehicle of infection)	Private home	99
Leptospira	0	1	2	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	99
unknown	0	1	2	0	n/d	Chicken	1	0	Descriptive evidence (possible vehicle of infection)	Private home	99
unknown	1	0	2	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	School/kindergarden	99
unknown	0	1	2	0	n/d	Chicken	1	0	Descriptive evidence (possible vehicle of infection)	Private home	20; 21
unknown	0	1	2	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	21
unknown	0	1	2	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	20
unknown	0	1	2	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	20; 21
unknown	0	1	2	0	n/d	Chicken	1	0	Descriptive evidence (possible vehicle of infection)	Private home	20; 21
unknown	0	1	2	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	8
unknown	1	0	3	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	School/kindergarden	99

unknown	0	1	2	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	20; 21
unknown	0	1	2	0	n/d	Milk	1	0	Descriptive evidence (possible vehicle of infection)	Private home	21
unknown	0	1	2	0	n/d	Meat products	1	0	Descriptive evidence (possible vehicle of infection)	Private home	20; 21
unknown	0	1	3	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	8; 21
unknown	0	1	5	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	8
unknown	0	1	2	0	n/d	Meat products	1	0	Descriptive evidence (possible vehicle of infection)	Private home	21
unknown	0	1	2	0	n/d	Milk products	1	0	Descriptive evidence (possible vehicle of infection)	Private home	20
unknown	0	1	2	0	n/d	Sausages	1	0	Descriptive evidence (possible vehicle of infection)	Private home	21
unknown	0	1	3	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	99
unknown	0	1	2	0	n/d	Sausages	1	0	Descriptive evidence (possible vehicle of infection)	Private home	21
unknown	0	1	3	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	8
unknown	0	1	4	0	n/d	Meat salads	1	0	Descriptive evidence (possible vehicle of infection)	Private home	99
unknown	0	1	2	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	21
unknown	0	1	2	0	n/d	Fresh fruit	1	0	Descriptive evidence (possible vehicle of infection)	Private home	50
Trichinella - T. spiralis	0	1	2	0	n/d	Pork	1	0	Descriptive evidence (possible vehicle of infection)	Private home	6; 7

Trichinella - T. spiralis	0	1	4	0	n/d	Pork	1	0	Descriptive evidence (possible vehicle of infection)	Private home	7
Trichinella - T. spiralis	1	0	7	0	n/d	Pork	1	0	Descriptive evidence (possible vehicle of infection)	Private home	6;7
Salmonella - S. Enteritidis	0	1	2	0	n/d	Fish salads	1	0	Descriptive evidence (possible vehicle of infection)	Private home	20
Salmonella - S. Enteritidis	0	1	3	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	7; 21
Shigella - S. flexneri	0	1	3	0	n/d	Milk products	1	0	Descriptive evidence (possible vehicle of infection)	Private home	6; 8
Shigella - S. sonnei	1	0	89	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	School/kindergarden	8
Staphylococcus - S. aureus	0	1	2	0	n/d	Cake	1	0	Descriptive evidence (possible vehicle of infection)	Private home	99
Staphylococcus - S. aureus	0	1	2	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	99
Staphylococcus - S. aureus	0	1	3	0	n/d	Sausages	1	0	Descriptive evidence (possible vehicle of infection)	Private home	20; 21
Salmonella - S. Enteritidis	0	1	4	0	n/d	Pork	1	0	Descriptive evidence (possible vehicle of infection)	Private home	99
Salmonella - S. Enteritidis	0	1	2	0	n/d	Egg/egg products	1	0	Descriptive evidence (possible vehicle of infection)	Private home	7
Salmonella - S. Infantis	0	1	2	0	n/d	Egg/egg products	1	0	Descriptive evidence (possible vehicle of infection)	Private home	7
Salmonella - S. Enteritidis	1	0	4	0	n/d	Cake	1	0	Descriptive evidence (possible vehicle of infection)	Canteen	50
Salmonella - S. Enteritidis	1	0	2	0	n/d	Cake	1	0	Descriptive evidence (possible vehicle of infection)	Restaurant/Hotel	99
Salmonella - S. Typhimurium	0	1	2	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	50

Salmonella - S. Virchow	0	1	9	0	n/d	Chicken	0	1	Laboratory confirmed	Private home	7
Salmonella - S. Enteritidis	0	1	2	0	n/d	Chicken	1	0	Descriptive evidence (possible vehicle of infection)	Private home	20
Salmonella - S. Enteritidis	0	1	2	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	7; 20
Salmonella - S. Enteritidis	0	1	2	0	n/d	Puuding/Creams	1	0	Descriptive evidence (possible vehicle of infection)	Private home	7; 20
Salmonella - S. Enteritidis	1	0	10	0	n/d	Fresh fruit	0	1	Epidemiological evidence	Restaurant/Hotel	99
Salmonella - S. Enteritidis	1	0	12	0	n/d	Cake	1	0	Descriptive evidence (possible vehicle of infection)	Private home	7; 20
Salmonella - S. Enteritidis	0	1	2	0	n/d	Chicken	1	0	Descriptive evidence (possible vehicle of infection)	Private home	7; 20
Salmonella - S. Derby	1	0	43	0	n/d	Pork	0	1	Epidemiological evidence	Other	7
Salmonella - S. Enteritidis	0	1	2	0	n/d	Egg/egg products	1	0	Descriptive evidence (possible vehicle of infection)	Private home	99
Salmonella - S. Enteritidis	0	1	6	0	n/d	Chicken	1	0	Descriptive evidence (possible vehicle of infection)	Private home	50
Salmonella - S. Enteritidis	0	1	7	0	n/d	Egg/egg products	1	0	Descriptive evidence (possible vehicle of infection)	Private home	7
Salmonella - S. Enteritidis	0	1	2	0	n/d	Egg/egg products	1	0	Descriptive evidence (possible vehicle of infection)	Private home	20
Shigella - S. sonnei	0	1	2	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	99
Shigella - S. sonnei	0	1	6	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	50
Shigella - S. sonnei	0	1	3	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	99
Shigella - S. sonnei	0	1	2	0	n/d	Milk products	1	0	Descriptive evidence (possible vehicle of infection)	Private home	6

Shigella - S. sonnei	0	1	6	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	50
Shigella - S. sonnei	1	0	31	0	n/d	Milk products	1	0	Descriptive evidence (possible vehicle of infection)	Private home	6
Shigella - S. sonnei	0	1	2	0	n/d	Meat salads	1	0	Descriptive evidence (possible vehicle of infection)	Private home	20; 21
Shigella - S. sonnei	0	1	3	0	n/d	Milk products	1	0	Descriptive evidence (possible vehicle of infection)	Private home	7; 21
Shigella - S. sonnei	0	1	5	0	n/d	Milk	1	0	Descriptive evidence (possible vehicle of infection)	Private home	8; 21
Shigella - S. sonnei	0	1	6	0	n/d	unknown	1	0	Descriptive evidence (possible vehicle of infection)	Private home	8
Shigella - S. sonnei	0	1	2	0	n/d	Milk	1	0	Descriptive evidence (possible vehicle of infection)	Private home	6; 21
Shigella - S. sonnei	0	1	4	0	n/d	Sausages	1	0	escriptive evidence (possible vehicle of infection)	Private home	50

Footnote

Obtain. fd. unsafe s.: 6
Using contam. ingred.: 7
Contam./infect. pers.: 8
Contam./inf. equip.: 9
Inadeq. cooking: 20
Improper storage: 21
Other/foodborne f.: 50
Unknown: 99